SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

COAL-CUTTING MACHINERY IN ENGLAND AND AMERICA.

THE "MONITOR" AND "PICK" MACHINES.

SIR,—When Mr. J. S. Alexander voluntarily gave his paper on the "American Coal-Cutting Machine," in the Supplement to the *Mining Journal* of March 27 last, he must naturally have expected that in this country, where so much had been done—and when all the real difficulties of cutting coal by machinery had been already conquered long ere Mr. Alexander's name was connected with the object—fanciful claims of novelty or efficacy would not pass without examination, but I am not aware that anything has been said which goes beyond the fair and reasonable limits of ordinary criticism. If Mr. Alexander had at first given full information upon all essential points to your readers, as he did to the press on the other side of the water at a previous date, some of the difficulties and troubles which we have since had to encounter would have been obviated; but he did not do so, and gaps which he left open had to be filled up as best they could in the absence of exact data; he must, therefore, take to himself the blame of having caused some obscurity or inaccuracy where there need not have been any.

I have before me the "Engineering and Mining Journal" of New York, of Feb. 13, from which I learn that the "air-pressure required" for working the Monitor is given at 25 lbs. to 30 lbs., and this is the evidence of Mr. Alexander himself. My estimate was based upon 40 lbs. of initial pressure; but Mr. Alexander *now* says it is only 20 lbs. (see *Mining Journal* of the 3rd inst.); so, between these conflicting statements we have to pick our way, and it would not have been surprising if some temporary injustice had been done to the American machine through these omissions, but which, however, does not appear to have happened. I have to admit that in one matter I fell into an error of description in my letter to you of April 13, where I stated that "the revolving plate of the Monitor had 84 cutting points in constant resistance." I was endeavouring to show that a revolving horizontal wheel with so many cutting teeth in friction could not give off any momentum force. I had calculated that of that number 34 would always be in resistance when the machine was in action, but I inadvertently omitted at the time to say so, and I did not afterwards consider it worth the while to trouble you with an explanation, because the purport of the sentence was so evident that nobody could be misled by it. Mr. Alexander has, however, a perfect right to call for a correction from me, although it does not in the slightest degree affect the question at issue either one way or the other.

Not so, however, in some mistakes which he has fallen into. In his paper, published by you on March 27, he over and over again states that the quantity of coal cut in a day of 10 hours was 50 tons, and in order that increased effect might be given to that fact, he adds, that "by running night and day the output would reach 100 tons in 24 hours." The machine appears to have been working during some years, and there can be no doubt that the 50 tons in 10 hours was a true account; and although Mr. Alexander now mentions that it has cut 70 to 80 tons in 10 hours, he must forgive me for saying that he ought not to attempt to distrust his own established quantity, for if this were admitted for the Monitor, it could not be refused to the Pick, and then when would the end come? It is quite clearly understood that the 50 tons a day is net, after deducting all loss of time occasioned by falling slates, propping, changing cutter points, and moving machinery to new face. The examination of these several provisions shows that although the Monitor is said to have been specially and uniquely "designed to overcome all the peculiarities and disadvantages" that coal mining is heir to, the "slates" will still fall, that "propping" must still be done, and that both time and expense must still be incurred!

These admissions, no doubt, account for the inferior working results of the Monitor—only 5 tons per hour, or 50 tons per day. I shall now ask Mr. Alexander for his special attention to the following extract from his last communication to you:—"Mr. Firth bases his estimates of the capacity of his machine upon coutinuous working, without interruption of any kind." This is not so, and I can hardly understand how Mr. Alexander, with the full correspondence before him, can be ignorant of the fact. I have never based any estimates of quantity of work done by the Pick upon continuous working, but, on the contrary, I contend that averages are the only results worth consideration. I am aware that the statement emanated from the representative of another rotary machine, but it is an entire fabrication, known to be so by its author at the time he made it. Mr. Alexander had the fullest opportunity of discovering the truth, and I do not consider him justified in using a misrepresentation for his own advantage, without sharing in the responsibility, and especially by adopting it he has been enabled to construct a series of accounts of a most unjust character as against a rival invention, and an arrogant and unreal account in favour of the working value of his own machine.

It appears that at the Indiana Mine the distance for the air to travel to the machine is only 500 ft., and that the pipes for conducting it are of 3 in. diameter, and Mr. Alexander adds that "with extended operations (distances) it may be advantageous to use a still larger pipe, thereby reducing the friction." The Pick is working at a distance of 9000 ft. from the engine, and the conducting pipes are only 2 in. diameter. This difference in distance and diminution in size of pipe so increases the friction as to fully account for a difference of pressure between 40 and 30 lbs., and Mr. Alexander will find himself very much mistaken if he expects that he will be able to supply the Monitor with power at equal distances at any lower cost per 1000 feet than I have estimated for the supply of the Pick, saying nothing of the extra "weight of metal" for the Monitor's big pipes, which in a large mine will be a serious affair. When Mr. Alexander states that he purposely uses large cylinders, so as to work at low pressures, he tells us only what everybody knows, but he might as well have told us why he uses two large cylinders, and further, why he drives them at 180 revolutions per minute? The Pick has only one cylinder, making only 60 revolutions per minute, which in the same thickness of seam, in the same number of hours, cuts 10 tons of coal, while the Monitor, out of 360 revolutions, only cuts 5 tons! It has always been an object with the advocates of rotary coal-cutters to prevent this part of the subject being understood.

Mr. Alexander points out that in the Pick machine the speed of the pick is four times as great as the speed of the piston, and he seems to think that this is a defect. I have always considered it to be the best proof of the small amount of power that is required to drive the Pick. It is well known to mechanical engineers that you cannot either add to or diminish power by levers, wheels, or cranks, except in so far as you increase or diminish friction, and I think it requires very little mechanical ability to understand that the Pick machine has far less friction than the large cutting wheel bedded into the coal, and the friction arising from the use of the complication of cranks, wheels, &c., necessary to drive the Monitor. In consequence of Mr. Alexander having now given us the average net area of each side of the piston, we are able to arrive at the exact horse-power required to drive the Monitor, and taking the actual pressure—at the maximum of his own statement in the "New York Journal"—at 30 lbs., and cutting off at two-thirds the stroke, the average pressure would be 28 lbs., and the horse-power thus:—

$$\frac{2 \times 55{\cdot}1 \times 28 \times 180 \times 1{\cdot}3}{33{,}000} = 21{\cdot}8\text{-horse power.}$$

Let anyone consider the question of the amount of steam which is necessary to yield 21·8 of compressed air power, and he will soon discover the reason why your correspondent, "A Mining Engineer," who uses a rotary machine, has never yet found a pecuniary advantage in it.

When Mr. Alexander was in England, less than two years ago, he saw at Mr. Brogden's colliery, in Monmouthshire, the Pick in operation, and from the tenour of his letter proposing to purchase one, I gathered that he was well pleased with its performance; but we were at the time not open to treat with him, and I cannot but feel sorry at the change in his opinion, and also at the very "faint praise" which he now accords to it. He says, in effect, that it delivers its "gathered force" at the exact point where all the work lies before it; and as all the power in the stroke is expended when the groove has been "channelled" out to the required depth, one would infer that its mission had been correctly and well executed. What more than this would Mr. Alexander desire? He admits that the force of the Pick is "irresistible," and says, that I rely upon "sheer weight of metal;" and then, with amusing forgetfulness of what he has already said, proceeds to argue on some unintelligible theory, which I cannto understand, that "quick blows with the point of a blade will have but comparatively little effect upon a close-grained coal." This is pure nonsense. We are at the present time with a 7-in. cylinder and 40 lbs. pressure of air cutting 12 to 14 in. into a solid rock of hard building stone, where the "steady pressure" of any rotary, with six times the quantity of power, could make no impression. As to my relying upon "sheer weight of metal," I may observe that I learn from the same New York Journal that has let out Mr. Alexander's secret about the air pressure that the Monitor weighs 3400 lbs., whilst the Pick weighs less than half of it, and, withal, "channels" out double the quantity of coal that is done by the heavy Monitor. How, then, is the "sheer weight of metal" argument supported by facts?

I do not think I need trouble you any more on this controversy; the principle of one rotary is practically the principle of them all, and the question has been thrashed out already in the columns of the *Mining Journal*. Anyone who wishes to acquaint himself with the real merits of the two systems can easily do so by studying the materials, which he can obtain from you; and as I have no more to say upon the subject, I shall leave the future of the question to the chances of war, and I am prepared to accept the challenge of any coal-cutting inventor to a practical test whatever the name may be, or from whence it may come, provided the caution money be appropriated to some charitable purpose, so as not to have a repetition of the recent trifling with the question.

In taking leave of this correspondence, I have to express my disappointment that your correspondent, "A Mining Engineer," so fair in all other matters, has turned a deaf ear to the twice-repeated enquiry as to the price he pays for filling, &c., of the coal which has been cut by his rotary machine, and also whether he works on the bord or the end. These are two most important matters, and his refusal to answer them—which could have been done in the compass of 20 words—deprives me of the means of a full comparison.

This course has prevented effectually the completion of an enquiry, which more than once he led us to suppose he so much desired to see accomplished. I should not wish to put an improper construction upon his sudden decision. WILLIAM FIRTH.

Burley Wood, Leeds, July 14.

AMERICAN MINING.

SIR,—I am glad to find, both from English and American papers, that Nevada mining is in the ascendant. The abounding wealth of that State cannot but assert itself. The people there are attracted by it as by a magnet, and their untiring energy and fertility of resource will sooner or later bring to their aid the needful capital to develope it. The English appear to be standing aloof, smarting under the sting of recent disappointments, and as if mentally purposed to expose themselves no more to a repetition of such bitter experience. If the unfortunate speculators, for it would be absurd to speak of investors in respect of the late crusade, were to tone themselves down a little by sober reflection, I have no doubt they would be led to conclude that what happened was just what might have reasonably been expected. It would not be worth while to speak of the past if the present and the future were not so prejudicially affected by it.

The tide of mining seems to ebb and flow like the sea, but, unlike it, without law, order, or regularity. Some subtle pervading influence which no one can define is set or sets itself in motion, begetting an excitement in the whirl of which many become intoxicated and reckless, committing themselves to schemes which when under the control of reason would appal them. But onward they go with the tide—the popular current—and so intense is their enthusiasm that when it ebbs they do not perceive it, and whilst it is flowing they are unconscious of the direction of its motion until they are aroused on finding themselves stranded on a rugged beach, and at a distance from the haven at which they had hoped to arrive.

Mining is naturally exciting to the most phlegmatic of those engaged in its prosecution, but those outside who receive impressions by the ear only, and whose interests involve pecuniary considerations, have the opportunity of contemplating things cooly from a distance, so to speak, and need only act but on reflection. It is not a thing of yesterday is mining, and the most thoughtless can scarcely be supposed to be wholly ignorant of its nature. At times exceptionally rich strikes are made, and the misfortune is that everyone then appears to become suddenly dissatisfied with everything else less absorbing, and it is then that a large number of imitation schemes are set afloat, and the inventive faculty of designing operators is called into requisition to fabricate equally captivating similarities; indeed, the spurious is generally presented in a more alluring dress than the genuine. A rush commences towards these artificial elaborations, and money in the estimation of its owners seems poor in comparison with such attractions. The rush is heedlessly continued until in a little while it is found that the objects to which it was directed were entirely phantasmagorial. A descent from the cloudless and gilded regions of fancy to the plain of stern realities which form, or should form, the basis of mining pursuits may have a chilling effect, but better this than the unconscious but fatal singeing which takes place in the upper regions. It is contrary to the genius and constitution of Englishmen to pursue phantoms, and when they essay to do so they present a most deplorable, if not a ludicrous, spectacle. The solid and sensible rather than the versatile is their distinguishing national characteristic feature, and which should never be abandoned in any of their undertakings. They recently made a fresh experiment on this line of departure, and it is needless to say it nearly all ended in disaster. The question now is how long will that adverse experience be allowed to retard the progress of mining? The cloud which has gathered would dissipate before the breezes of prosperity, but these cannot be fanned into motion whilst the essential agencies remain inert. What is to be done; will Englishmen continue to nurse an antipathy against an otherwise attractive object simply because of errors committed under the influence of extraneous causes, and to which they themselves contribate not a little?

The State of Nevada especially is rich in the precious ore. But there, as here, money may be uselessly squandered in attempting too much with too little means, or by an improper application of such means. To speak of unlimited supplies of ores, and on a scale unprecedented in the annals of mining, from sources not known to exist, was an absurdity which one might reasonably have thought would have fallen flat to the ground. Is it not better to buy an undeveloped property for a little money, well found in all the prerequisites of successful mining, and spend a few thousands in opening up its resources and providing the necessary facilities for an expansive and proper scale of working—one whose value steadily increases as progressive developments are made—than to buy an equally undeveloped mine, but a certainly developed bubble already expanded to its utmost capacity, and gilded by every artifice which ingenious minds could devise, and at an astoundingly high price. Reason and experience both answer affirmatively? If Englishmen would assume their more befitting habiliments of sobriety, moderation, and patience, and summon to their aid, as they can do, the experience of ages, and consent to be regulated by its teaching, they would have nothing to fear from competitors in any part of the world. The errors of the past would be easily redeemed, and not soon again repeated. There are no fundamental differences between mining in foreign parts and mining in this country, and those who affirm that there are do so at least in ignorance of the facts. The differences which exist are circumstantial and on matters of detail, and do not extend to the principles which affect the practice and prosecution of mining as recognised and adopted by experienced miners everywhere. If I had not examined a very large number of the so-called peculiarties which are said to mark Pacific Coast mining, I should, no doubt, like many others, be induced to believe that they really did exist, and in such a way as to seriously embarrass a miner from this country. It is true that there are very many dissimilarities, to explain which new and bold lines of theory are required. But throughout a large extent of that country the lodes are as regular and well formed as they are in this or in any country, and are similarly influenced and affected by slides, cross-courses, and changes in the rocks through which they pass. A miner who cannot adapt himself to a change of circumstances relating to detail, or even if extending to primary principles, shows he has no resources within himself, and thereby demonstrates his own incapacity. There are splendid opportunities for acquiring valuable mines on the Pacific Coast for comparatively small sums, but they are mines of the permanent type, whose indications of wealth and success point downwards, and which cannot be arrived at without having recourse to something at least symbolical of mining. It may be a waste of time to write about this matter, but it is worthy of serious attention nevertheless, seeing how much has been lost by recklessness, and how much might be regained by a more cautious mode of procedure. Valuable properties which agree with the Englishman's ideal of home mining could, and still can, be bought at sums not exceeding what have been paid for a single inexperienced and unscientific inspection from this country, but what was 5000*l.* to pay for a name with distinguished initials attached to it?

We live in fast times, when everything is expected to proceed with a velocity corresponding to locomotive steam-engines and electric telegraphs, but mining cannot be prosecuted at such a rate of speed, and has to be distinguished by something different from the superficial area which may be done in a day. The progress of architectural designs is greatly facilitated by mechanical means, but the application of these does not enable the builder to dispense with a good foundation whereon to build, nor with material and the necessary adjuncts to complete the structure. The province of mind is to comprehend matter, and to understand the natural condition of objects, to the development of which expansive processes require to be addressed, is of primary importance to mining; and if this is not attended to the proceedings will be of a hap-hazard character, prosecuted in ignorance, and unnecessarily exposed to error. No one, I presume, will contend that the recent proceedings of English adventurers in the Pacific Coast mining were marked by a very high degree of discriminating intelligence, or even of caution. It is now generally admitted that the mines in respect of which the greatest mistakes were made were ruinously abused, in the vain endeavour to extract from them what they or any other mines ever had the capacity to produce. It is to be hoped that the next attempt will be much more English in its character and moderate in its aspiration.

Llanwrst Lead Mines, July 13. ROBERT KNAPP.

MINING ON THE PACIFIC COAST—No. XII.

SIR,—In my last I submitted one notable and well-authenticated instance as an illustration of the manner in which English capitalists have been heretofore deceived in their estimate of the mines of this county, by the very men in whose honour and judgment they reposed the greatest confidence. That, unfortunately, is no isolated case. It would be well for not only the interests of this State but for the pockets of British investors that such was the fact.

The English experts who were the chief actors in that little mining episode were doubtless selected from among their fellows on account of their supposed peculiar fitness for carrying out the orders of their principals. They were probably thought to be honest, capable, and trustworthy, otherwise it is presumable that they would not have been honoured with the confidence which they afterwards so recklessly abused. Everybody residing in the section of country in which the mines they were instructed to inspect are located knew how utterly worthless they were, having neither ore or other merit that could in any manner recommend them as a source of investment to any intelligent man. Whatever ore the Maryland originally possessed had been carefully extracted, and worked, long before the brilliant notion of placing it on the English market was conceived. I cannot now remember the names of the other locations that composed the series which were ultimately sold to the Pinto Mining Company (Limited) of London. The Maryland was, at all events, the best of the group, the others having nothing to recommend them beyond the prominent limestone outcrop, and the great altitude of the majestic mountains, upon whose rugged summits they yet stand as enduring monuments of the perfidy of those who deemed them to be worthy of attention and final purchase. They will also serve to perpetuate the folly exhibited by English capitalists in this as in other transactions of a similar character, from which equally disastrous results have long since followed. Were these mines examined by American experts they would have been unhesitatingly rejected as valueless. The merest tyro in mining or geological science, had he been honestly disposed, could have done no less. There remained no other alternative, for the property was absolutely destitute of any of the qualifications for which mining men invariably look when about to purchase. But it is now too late to indulge in useless speculative theories regarding the means used to influence the judgments and quiet the querelous consciences of the men who were instrumental in having them sold. The mystery is, however, susceptible of solution had I a desire to investigate the subject further, but since I have not I will be charitable, and allow those most interested to deduce from what I have said whatever conclusions they may think most proper under the circumstances.

As soon as the worthless character of the above property was fully determined, which we might reasonably suppose was not long, there came a loud wail from the duped ones at the other side of the Atlantic. Lamentations, however, were useless, for the harm had been accomplished, and the sellers had already pocketed their respective portions of the spoils for which they had laboured so long and earnestly. One still continued to exercise his functions as agent for the said company, and having placed, of course, a thoroughly reliable man to superintend the development of the property, in accordance with his own suggestions, he was for awhile successful in keeping from the company the full extent of the loss incurred. But the storm burst forth at last; then came criminations and recriminations, and threats, and promises in profusion. The Pinto Company complained of being swindled, and threatened instant proceedings to recover, on the ground of fraud; and another of the party was, I believe, actually arraigned and made to give up a portion of his share of the profits. The agent, dreading the same, or like, became all at once remarkably virtuous and repentant, and offered to make reparation by selling them, at a bargain, a magnificent property lying contiguous to the other, which he had purchased with a view to make up for the loss sustained in the other transaction. This he offered at the remarkably low, and to him ruinous, price of 15,000*l.* alleging his desire to make ample amends for the past as being his prevailing motive of action, and requested the company to send out immediately thereafter two competent gentlemen to inspect and report on the merits of this astonishingly valuable mine, or series of mines, there being three or four in a group together, denominated the Basye Mines, of Secret Canyon, two miles south of Eureka. The bait, sugar-coated as it was, proved too tempting a morsel to the English victims to be lightly rejected, therefore it was quickly taken hold of, and devoured with apparent avidity, by the minnows whom the big fish of Nevada was all this time making elaborate preparations to swallow. So it is with the world, and so it will continue to be. While gain holds out an allurment to man's ambition such things will happen, no matter how we may moralise, or how bitterly we may condemn the rapacity of those who indulge in such frolicsome pastimes. Man's inhumanity to man, the proverb says, makes countless thousands mourn; and man's perfidy to man in all the relations of business, whether in mining or commercial life, has before now rendered many a man miserable who otherwise might have enjoyed happiness and contentment. But, alas! there is no honesty in the world worth mentioning—at least in the mining world, I fear. Man is the same everywhere. His good or evil impulses are the same in London as they are in Nevada, and were the emotions of all hearts made known appalling indeed would be the result. The man who deals with you in apparent honesty is, while doing so, secretly devising the means whereby he may cheat you, and transfer the contents of your purse to his own pocket. Even the man who is considered scrupulously honest is in some respects a shuffling, canting hyprocrite; and the

woman who is thought to be perfectly chaste has secret thoughts which she would shrink from revealing to her husband or her mother. The dishonesty that pervades the world is so well understood that it takes the most binding legal documents to make the best among us decently honest. England's greatest bard was not far wrong when he remarked "Men and women are merely players." Yes, and the world is the stage, and life the shifting scenes, where the best among us are but acting the parts of poor players, assuming characters that they sometimes can but ill sustain. But why waste time in senseless moralising? Man will ever be an Ishmael in the world's desert, led by the Hagar of his own ambitious schemes and deceitful practices.

The agents from London arrived in due season, and were conducted to the new El Dorado, midst the hills of Secret Canyon. The Nevada owner and his secret conspirators had all in readiness, and were, therefore, prepared to receive them. They posted look-outs on the most promising points overlooking approaches to their wonderful bonanza, so as to be able to receive timely warning of the coming of the Englishmen. In the meantime the shaft had been liberally "salted" with ore procured from other mines, and what was not placed in the bottom of the shaft was scattered profusely around its immediate vicinity on top. The men were all at their posts, holes already drilled and loaded, ready to be let off the instant the unsuspecting strangers came on the crest of the hill. They did so in a few minutes after, and were somewhat startled by the command from one of the men on the watch, who had previously given notice of their presence, to remain where they were until the blasts were touched off. An instant longer, and our transatlantic friends were not only amazed by the electric shock produced from three or four heavy blasts close by, but were also soon enveloped in a dense volume of powder smoke, besides having to dodge as best they could a shower of flying missiles, which fell thick and fast in the neighbourhood of where they stood, silent but astonished spectators of the scene in which they were about to play no unimportant part. Being led to the mine—or what was designated one, which is about the same thing, so far as the purpose of our narrative is concerned—they were agreeably surprised to find so large an amount of high-grade ore in sight in the shaft. The men, too, came from all sides, bearing the *rich* rock that had been previously scattered about by the shots, and laid it carefully at the feet of the pleased Britishers. Some debris was, of course, mixed up with it, but as this was no unusual occurrence in mining it was looked at as a necessary consequence of the heavy shots, which tore everything loose, blending ore, lime, and gangue in one confused mass. The ore was hastily examined, passed from hand to hand, and pronounced excellent, and samples were secured for assay as soon as town came to be reached on their return. The preliminaries of sale were soon arranged, without our brilliant English experts once deigning to institute further enquiries, or to see how far the evidences before them could be depended on. The shaft was not entered, nor was the loose rock at its bottom and sides removed, to give a chance to observe the character of the *fine lode* beneath. There was no use in soiling their hands or their clothes, or even of dispensing with their fragrant Havanas, for had they not the evidences of their senses, and what more was needed? The scenery was admired and expatiated upon, for our rich mine happened to be perched upon the very apex of a huge and bold bluff, which rose majestically from the canyon below, and frowned defiance to anyone bold enough to question the character and extent of the mineral wealth reposing beneath its rugged exterior. The sacrifice was completed, for the ore assayed high, and the sellers became the possessors of the 15,000*l.* originally stipulated to be paid for the property in the event of its passing muster; and thus the English minnows became the prey of the Nevada sharks; and thus, too, was added another link to the chain of evidence that has condemned Nevada as being the mining Nemesis of the English people. And yet their own agents have been the Pelion and the Ossa of these direst misfortunes in this quarter of Uncle Sam's territory. Wisdom cometh from experience. Let the past be remembered, and let also wiser councils prevail, and let better judgment be exercised in future in the selection of the men to be sent out upon such missions, and all will be well. Our Nevada agents afterwards disgorged 3000*l.* of the 15,000*l.* to the Basye Consolidated Company, per its agent, T. W. Taylor. J. D. POWER.

Tybo, Nevada, June 6.

THE CLIFTON SILVER MINING COMPANY.

SIR,—The special general meeting of shareholders for the purpose as the notice stated, "of winding it up voluntarily," was duly held on the 9th inst., at the office of the company. It is to be regretted that no reporters were allowed to be present, as I am sure those shareholders who were unable to attend will be much disappointed at finding no account of this, to them, all-important meeting in your valuable Journal, to which they would, as a matter of course, appeal for information. As a shareholder present, I would ask you to make known to the absentees the result of the meeting, which, briefly stated was—1. That the resolution "to wind-up the company voluntarily" was unanimously negatived, there being no immediate cause for any such procedure.—2. A "committee of inspection" was chosen by the shareholders at the meeting, which has undertaken to investigate the position of the company and submit their report to the shareholders at a future meeting.

I read "A Shareholder's" letter in the Journal of July 3, and also the Secretary's reply, in your last issue. In reading both over carefully I am induced to believe that "A Shareholder" wrote solely on behalf of his fellow-shareholders and the vital interests of the company, which were in great jeopardy. The secretary we have to thank for correcting many statements, who, from the position he holds, ought to be an authority to which "A Shareholder" must bow. Let us hope, however, that the committee will look carefully into every detail, and draw up a truthful report tobe submitted to a meeting of shareholders at as early a date as possible.

ANOTHER SHAREHOLDER.

THE EUREKA CONSOLIDATED COMPANY.

SIR,—The great discoveries made in the mines of this company, whose name I place at the head of this letter, are giving Ruby Hill a world-wide celebrity it never before commanded. I had the pleasure some weeks ago of examining the bonanza found in the 7th level of the company's works. From the main shaft the level extends north-north-west about 240 ft., and then a mass of high grade ore is reached, measuring 100 ft. in the direction of the level, and 190 ft. along a cross centre drift. It has been followed upwards of 100 ft., and downwards 60 ft., and seems to be almost free from extraneous matter, such as country rock or waste. It bears no resemblance to a lode or vein, but appears rather to be an immense "pipe" or bed of ore, yet it occurs near the dividing line between the quartzite and limestone, though wholly in the latter. The ore will yield from $60 to $70 per ton in bullion, and, fortunately, contains sufficient lead to make it smelt easily. In walking along the drifts the flicker of a candle causes the exposed surfaces to glisten and sparkle as if innumerable gems were placed there to captivate the beholder's eye. It is from the crystals of molybdate of lead that the scintillations come, and at times these are found in clusters, having a pale delicate orange colour, and then the collector of cabinet specimens gets a treasure worthy of his pains. One of the first effects of the discovery of this new body of ore was a large advance in the price of the stock. At one time the increase was about $60 per share, or $3,000,000 in all, but it soon receded, because the stock-operating "bears" wished to buy in at lower figures. The market price is now $63, which for the entire property is $3,150,000, the par value being $5,000,000, in 50,000 shares of $100, but the property is worth more, provided that fair dealing by the directors could be depended upon.

It, unfortunately, is generally the case on this coast that mining companies in the position of the Eureka Consolidated are made the victims of a "claw and toss" game by "bulls" and "bears," and shareholders who buy to hold are made to suffer at the will of the reckless speculators. By offering stock at less than its current price the figure is easily broken, and if necessary to find a good reason for the break the reduction works can be furnished for a time with waste rock, and the poor returns when made public will make timid owners only too glad to sell to their relentless foes. I do not believe that the directors of the Eureka Consolidated Company will have recourse to any such practice as this, but either inside or outside of the board there have of late been "bearish" pranks, deserving of condemnation.

NOTE.—The Dunderburg Mine, formerly owned by the Ruby Consolidated Company of your city, is now known as the Atlas. It is proving a very valuable property. Why did the former owners let it slip out of their fingers? J. D. EMERSLEY.

Eureka, Nevada, June 24.

FLAGSTAFF MINING COMPANY.

SIR,—The present aspect of this concern is such as to need prompt and united action on the part of my fellow-shareholders, in the absence of which the end cannot be far off, as independent enquiry will convince them. The written advices just received from Mr. Woodifield, who has gone out on our behalf to report upon the mine, are, I understand, to the effect that "the man in possession" has exhausted all getable ore, and that nothing can now be obtained from the mine save as the result of successful explorations. Money must, therefore, be forthcoming—(1) to pay out Mr. Davis, and (2) to sink fresh shafts and explore. The issue simply is, will the shareholders save the property from a forced sale by subscribing 60,000*l.*? They must act for themselves, for I hear that discord reigns at the board, and that half the directors resigned at the beginning of the present week.—*July* 14. A SHAREHOLDER.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—It is satisfactory to find that the repeated attempts made by irresponsible parties, whom rumour says are from time to time employed by despairing "bears" to endeavour to scare the shareholders in this company, have now just the opposite effect to that intended. As a shareholder I naturally ask myself the very simple question—why should an utter stranger put himself to the cost and trouble to induce me to sell my shares? Such proferred interest in my behalf is always much tainted, and has long ceased to have any prejudicial effect. The time was when a certain class of inexperienced shareholders may have been thus biassed, accepting basely unfounded statements as reliable, but happily shareholders no longer play into the hands of such obscure harpies. Were these spasmodic outbursts of unsolicited philanthropy possessed of even the merit of originality—which is always conspicuously absent—some unwary shareholder might possibly be led to blindly believe that such detractors are really disinterested in the advice they so voluntarily vouchsafe, and that they really believe that to which they give utterance; but as their latest productions contain nothing whatever that has not been fully discussed and re-discussed in the columns of the Journal for the last two years, without the announcement of one single fact, it would be simply a reflection upon the commonsense of my fellow-shareholders were I for one moment to imagine that in the present day they can be cajoled by such hackneyed, transparent machinations. As shareholders we know full well by realised results that we have abundant reasons to place implicit confidence in our Chairman and directors, as well as the officials on the other side, whose large and increasing interest in the undertaking is the most powerful incentive to do all in their power to promote our best interests, and shareholders will be acting with simple prudence only by turning a deaf ear to those who are but the creatures of others. A LARGE SHAREHOLDER IN THE RICHMOND MINE.

July 15.

RICHMOND CONSOLIDATED MINE.

SIR,—A circular has been sent me relative to the Richmond Consolidated Mine by an unknown firm of "outside" brokers—beyond the pale of the Stock Exchange, and who do not reside 100 miles from Union-court. The individuals are perfect strangers to me, and as they kindly advise me to sell my shares, a greenhorn might wonder as to the cause of such disinterestedness. They are careful to depreciate the mine and those connected with it; they point out how bubble mines have collapsed, and narrate in a mysterious, ambiguous way about a large shareholder wishing to have the mine inspected, and of history repeating itself, omitting to mention that they themselves are pulling the strings, and are making a catspaw of the shareholders. They make use of ambiguous language and specious arguments for the benefit of me, a stranger. There is dishonesty on the face of it. There is a gang of these fellows who prey upon the vitals of timid investors, creatures not worthy of the name of man, without the courage of the highwayman, though imbued with a love of pilfer, low, cunning company-mongering solicitors, and such like creatures, who have sold Richmond shares without possessing any, and who are now "bearing" them in order that they may cause a panic in the minds of weak holders, and so be enabled to buy shares cheap, and land a handsome profit, and if at the expense of some poor widow or clergyman, &c., they care not. My motive in writing this is to expose the fraud, and so to caution shareholder. I hold a considerable number of shares, have not sold one, and do not see any reason why I should do so, the accounts from the mine being most encouraging.

July 13. SHAREHOLDER.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—This company has had in the past week another specimen of a defamatory circular sent to their shareholders by an abusive rhodomontade scribbler, whose object is too apparent. In the first place, he falsifies figures to substantiate his attack; compares a tried and proven substantial property with others less fortunate, impeaches the scientific knowledge of two of the most eminent mining professors in the United States. And why all this rhapsodical humbug? Simply to scare shareholders to sell their shares for "bear" operations, to run down the stock to fill the pockets of unscrupulous jobbers. Can these circulars be printed and posted out of pure interest to shareholders? Who pays the cost? The object undoubtedly is to run down the price of the stock which, at the present price, is far below its intrinsic value. We have a good honest working board of directors, but I cannot help thinking they, as our trustees, should protect our property by at once taking legal proceedings against these defamatory scribblers, and I am sure they will meet with the hearty concurrence and support of the body of shareholders by an immediate prosecution. An action could not be sustained before November next, but I would suggest that the directors give the company's solicitor instructions to at once proceed by way of "an indictment," which would be a wholesome punishment to the perpetrators of such villainous attacks.

New Cross, London, July 15. A SHAREHOLDER.

THE RICHMOND MINE.

SIR,—In common, I presume, with all my fellow-shareholders, I have received a circular bearing the motto, "To everything there is a season," containing most disinterested advice to sell my shares in the Richmond Mine without delay and at any price I can get. It appears to me that the only justification for the issue of such a circular would be the fact of the writer having come into possession of certain knowledge as to the demerits of the mine, the withholding of which would leave his friends and clients lulled in a false security; but if the circular were penned and issued without such special knowledge, and merely for the gain of the writer, I for one cannot perceive any difference between the dishonest intention which it evinces than picking a pocket. On careful perusal of the circular what do we find? Not one fact connected with the mine, past or present, that was not already known to the large body of proprietors, but all marshalled in so false and distorted a light as to leave the impression upon the unwary that some great crash was impending. He tells us as a startling and bewildering circumstance that upwards of two millions must be extracted from the mine to yield a return of the then market price; but he fails to place side by side with this statement the enormous sum which has already been taken from the mine in little more than two years, with no signs whatever of exhaustion. He taunts us with the total make of bullion, and the week's run dangled before our eyes in the Journal, but he does not say what other criterion of the mine's progress and value he would substitute for this unfailing test. He asks us, with a well-feigned air of astonishment, who knows Professor Price? and what are the special qualifications of Mr. Probert for his duties? but he does not tell us what means he has adopted to justify his evil prophecies. Is he a mining engineer? Has he been to Eureka? Has he any agent there that he should be so wise for our benefit?

In fact, the whole drift of his argument—if we may dignify his bogus circular by such an expression—is to the effect that because certain notorious mines in America have collapsed, therefore the Richmond must. Surely a lame and impotent conclusion (in the face of the most patent facts) from very miserable premises. However, judging from the state of the market, his shaft has gone home, and I suppose he has made his profit, but it seems almost incredible to me that the issue of such circulars should bring business to their writers. For my own part, I would avoid such an one as I would the plague. My argument would be, he writes this to dupe the public, therefore he would dupe me. But, perhaps, the key to the writer's anxiety on our account is to be found in his last page, in the significant words, "We endeavour to make a market for shares difficult of sale." In other words, he endeavours to write up for sellers among his clients mines in a hopelessly collapsed condition, and for buyers to write down any good mine like the Richmond. May he meet with his reward.

July 13. A SHAREHOLDER WHO MEANS TO HOLD.

RICHMOND CONSOLIDATED SILVER MINING COMPANY.

SIR,—In my letter of May 31, when the Richmond shares stood at 10*l.* 10s., I adduced certain facts and reasons for the belief expressed that a further rise was tolerably certain. Since then the report of Prof. Price has appeared, and the estimate he gives of the reserves in sight more than bears out the calculation of three years' reserves in hand, which I had made from the data sent over from time to time respecting the progress made in the mine. I write again to my numerous friends among the Richmond shareholders, in consequence of a specious circular just issued by a Mr. McKenna, who I find holds one share in the company. He starts with the statement that the mine would have to yield 2,500,000*l.* to return the market price of the shares. Assuming the shares to stand at 15*l.*, that capitalised would be 810,000*l.*; and as Prof. Price puts the profit value of the existing measured reserves at 677,689*l.*, and as 25,000*l.* out of revenue was placed to the cash reserve last quarter, and 15,000*l.* has been paid for the re-productive refinery, while on the data of one-third profit, which is now much too low an estimate on the gross produce since the end of February, when the half-year's accounts were made up, there is already this quarter a profit of 43,000*l.*; there is thus a total in cash and reserves of 760,689*l.*, which is equal to a sum of more than 14*l.* a share. Now, as beyond this proved value, there is still the grand series of mines and the most extensive plant and works owned by the company, with the prospect that the existing reserves may speedily be vastly increased, as Mr. Price significantly points out that the end of the drifts and cross-cuts from which he obtained his measurements were still in ore, and, consequently likely to be continued in each direction, it is evident that the shares are still remarkably cheap. I find that the main lode has been proved down to 400 ft. in ore, and that hoisting machinery has been ordered sufficient for 2000 ft. On the dimensions given by Prof. Price, each further sinking of 70 ft. on that one spot will add a year's supply to the reserves, while the prospects are most encouraging of finding large bodies of ore in other parts of the property.

I will notice another egregious perversion of facts in the circular in question, the writer coolly describing as "extraordinary expenditure out of capital" the item of 35,632*l.*, which he deducts from the net profit of 80,310*l.* for the half-year ending February, 1875, the said 35,632*l.*, consisting, as shown in the company's accounts, of 25,000*l.* put to cash reserve, and the balance to payment of the refining and other works. The object of thus treating the cash reserve and valuable asset in the refinery being to insinuate that, though the net profit was "59 per cent.," the "free revenue" was only "33 per cent.," thus leaving the inference that at the market price of 15*l.* the revenue would only yield 11 per cent., the fact being that the rate of profit of 59 per cent. on a capital of 270,000*l.* offers a division, sooner or later, of nearly 20 per cent. to investors at 15*l.* per share. As Professors King and Price stand at the very head of their profession in America, and are universally held to be even more honourable than skilful, they may well afford to be calm under Mr. McKenna's attempts to depreciate them.

The shareholders will naturally enquire what qualifications this detractor has to entitle him to give an opinion in opposition to such overwhelming evidence. He resorts to the stale trick of adducing the failure of certain American mines to prove that the Richmond cannot succeed, and quotes predictions that have not been fulfilled in the former cases, without having the candour to state that the statements made in respect to the Richmond have been more than verified; and that, though it is true that the mines he quotes have not yet returned their first cost, the Richmond, with the 2*l.* 14s. already paid in dividends, and the 83,000*l.* earned beyond, has already, within 15s. per share (an amount which the next three month's earnings will more than supply), cleared the whole of its capital of 270,000*l.*, leaving, therefore, as clear gain reserves valued in the gross by Professor Price at 1,393,606*l.* sterling, together with the freehold of the mines and works. In answer to the cavil against the item in the accounts of profit value in the ore on the dump, it is sufficient to remark that the item includes the cost up to the next step, which converts it into bullion, and it is generally all actually in bullion, ere the half-yearly accounts reach the shareholders. A. H. WESTAWAY.

Austinfriars, July 13.

ANCIENT DISCOVERY OF LODES.

SIR,—Your correspondents who addressed you last week on the above subject, in reply to the letter of Mr. Edward Skewes, which appeared in the Supplement to the Journal of July 3, while challenging that gentleman's practical knowledge of tin mining, appear to have let him off a little too lightly on the subject of "history." Mr. Skewes in his letter states very plainly and very boldly that "History informs us that the Phœnicians came to Cornwall for tin 1500 B.C. My object, with your permission, is to enquire from what history such information is derived? For such a statement cannot possibly be supported by the well-worn extract from Diodorus Siculus, who lived and wrote his history about 50 B.C. So far as most people are aware, there is no record whatever of any such trade existing between Syria and Britain prior to the writings of Herodotus 443 B.C., and this historian refers to it rather casually in the following terms:—"Nor am I acquainted with the Casseritides Islands, from whence our tin comes, &c. However, tin and amber come to us from the remotest parts." Taking the brass of Bible history to be an alloy of tin and copper, indirect evidence of the very early existence of tin is to be found in the Books of Moses, written 1015 B.C. The serpent of brass which was lifted up in the wilderness, and the pillars, chapiters, baths, and lavers which were made by "Hiram, a man of Tyre," for King Solomon's Temple are familiar to all of us, but we have no information from whence the metal was obtained.

The first direct evidence and the first actual account of the manufacture of brass from tin, and its subsequent conversion for useful purposes, are to be found in the Iliad of Homer, written 962 B.C. Lord Derby's translation furnishes the following vivid description of Vulcan forging out a brass shield for Achilles:—

> "The stubborn brass, and tin, and precious gold,
> And silver first he melted in the fire;
> Then on its stand his mighty anvil placed,
> And with one hand the hammer's ponderous weight
> He wielded, while the other grasped the tongs," &c.

If Mr. Skewes is in possession of any history which carries him back 1100 years beyond the date of Herodotus, the "Father of History," is it too much to ask that he will be good enough to publish it for general information? P. W. FLOWER.

Neath, July 14.

ANCIENT DISCOVERY OF LODES.

SIR,—I kindly thank those gentlemen who wrote so ably under the above heading in the Supplement to last week's Journal for the information imparted, and although there may be a difference betwixt us in the minutiæ of this subject, yet such has not prevented them from dealing with it elaborately, and in a friendly manner. Discovery of lodes is certainly of importance to the mining interest, but the disclosure of mineral deposits is fraught with more commercial advantages, and of more intrinsic value, than knowing the localities of a dozen of non-metalliferous and non-productive lodes or veins at any time but at the present, with tin at its ruinously low quotations. Will not some of your correspondents give their opinion and observations on what to select and what to avoid, thereby having a tendency to render mining less hazardous as a speculation, and more reliable as an investment? "Mid-Cornwall" has stated, after 30 years of experience, that he has "never known a productive lode unless intersected by other lodes, branches, cross-courses," &c., which observations are fully borne out by practical men in almost every district, although Mr. W. J. Henwood, F.R.S., F.G.S., has stated that "transverse joints appear to exercise an unfavourable influence on the produce of lodes."

We have heard pretty much about junctions and convergencies of lodes, with caunters and other lodes, not parallel in dip and direction, and the meeting of two such has often been the crucial test to which mines are subjected. I should like to know what is the effect at the junction of two poor and unproductive lodes—"Does twice nothing make nothing," or does it make "one?" Mr. Williams,

some three or four years ago, called the development of lodes in proximity to cross-courses "mining on scientific principles," the importance of which has been known for a great number of years, and is still recognised. Elvan courses in some districts are "good neighbours but bad tenants," whereas in other districts the mineral is in the elvan.

I quite concur with Mr. J. Roberts that "changes cannnot be watched with too great an interest," such as heaves, slides, dip, direction, temperature, and the angles the lodes form with elvan, or cross-courses with their directions and underlies, as their services may be required for local analogous reasoning.

To vindicate myself a little I am no dowzer, neither did I in my last letter give any arguments for or against the use of the "divining-rod," but merely stated that the practice was known to the ancients, not that they used it.—*Gwinear, July* 13. EDW. SKEWES.

THE DIVINING ROD.

SIR,—It is at all times very easy to sneer at what we do not understand, but this course is not always advantageous to us. If we refuse to acknowledge the presence of every power in Nature we cannot explain, we shall refuse to acknowledge many things indeed, and shall ourselves be the losers thereby. It has certainly become the fashion of late to reject some things because they appear mysterious to us, and yet we are surrounded by mystery on every hand. Who fully understands electricity, magnetism, light, heat, gravitation, &c.? Who understands how, when, and why the earth was formed, or the metallic minerals deposited in its veins? It has been asserted by many worthy of the highest credit that the divining-rod has been found effective in the discovery of mineral veins. Can anyone assert that this is not true? It has been regarded as improbable; it has even been held by some as impossible. If impossible, we ask why, and think we should get a reply to that question; or, if no reply can be given, then it is not impossible, and therefore demands an enquiry. That the rod has been held sacred in all ages, for some inscrutable reason, is well known to any man of the least pretension to learning. It was regarded as an emblem of an inscrutable power, and an instrument in divination, by the ancient Egyptians, by the Chaldeans, and by the Hebrews, as we find in Holy Writ. According to Tacitus, a branch of a fruit tree was used, with many ceremonies, in divination by the ancient Germans. The ancient Scythians also, according to Herodotus, used bundles of willow twigs. The rod in some form was held sacred by the Greeks, for we find that Proserpine revealed to Æneas the golden bough that would open to him the gates of the infernal regions. This is referred to in terms such as these—

> "Deep in a mass of leafy growth,
> Its stem and foliage golden both,
> A precious bough is there unseen,
> Held sacred to the Infernal Queen.
> Around it bends the whole dark grove,
> And hides from view the treasure-trove."

Here we find that the sacred rod was connected with metallic deposits, as in the present day. We also find that the ancient Druids, both in Gaul and in Britain, regarded the mistletoe as sacred, and which they cut, with many ceremonies, with their little gloden sickles on a fixed or regular day in every year.

In Egypt at the present day an aloe is hung over the door of a house to secure long life to its inmates, and with the Hindoos the lotust tree is held as sacred. In this country the dowsing-rod is regarded at the present time as indicating and possessing some mysterious power of communication, whether of electricfty, animal magnetism, odic force, or any other force we know not, but some power which compels it to point downwards when passing over mineral lodes.

Is it likely that this sacred rod, which can be traced down from the highest antiquity through so many ages can have been regarded by the mightest minds in all those ages as holding some mysterious power unless there was some reason for this belief? Did the ancient learned nations know nothing of those mighty forces, still hidden secrets of Nature, electricity, and magnetism? All evidence goes to prove that they were acquainted with these forces, or if not, then with some other force or forces at present hidden from our ken. Is it likely that the learned of all nations and ages made use of the rod in their divinations, and held a knowledge of its use as among their most sacred and guarded privileges, if it had no power? The idea is preposterous, and after a moment's thought can only be accepted by men who care not to put themselves to the trouble of an investigation. This dowsing-rod has been sneered at for so long that, although there are many believers in its potency, and many practicioners of the mysterious art, men cannot be found bold enough to write in its defence. I shall, no doubt, be set down as a visionary, or something worse, bnt the dowsing-rod exists still, and will continue to be believed in so long as men can witness its power. Galileo, although compelled to deny the truth, yet quietly said, "The earth moves still;" and although you sneer so long until men are ashamed or afraid to admit their convinction, the rod moves still, and will probably continue to move.

Instead of treating this matter with the profound contempt so often expressed regarding it, would it not be more philosophical to institute a thorough enquiry? It is believed in by many who think they have discovered metallic lodes through its agency. Is it at all ascertained that they are wrong? We do not understand in what way it can be acted on, nor by what secret power it can point to the desired metallic deposit; yet there are many things equally as inexplicable to us. We do not understand exactly how a blade of grass grows; we cannot produce a leaflet or a flower; yet we believe that a bunch of grass does grow, and that the earth brings forth leaves and flowers. That very rod would not have been called into existence but for some connection between the earth and itself, and that connection involves a mystery we cannot exactly understand or explain. We do not know why certain changes and variations in the appearance and composition of different strata should affect the producing power of metallic veins; and yet our daily experience proves to us that these are intimately connected. We do not know exactly in what way are produced some of the exquisitely beautiful crystals we find in Nature's laboratory, and yet that they are produced is very evident to our senses. If we reject the dowsing rod for no other reason than because we do not understand it, we should reject life also; for it is certainly clear that we do not understand the great mystery of life.

A question has been asked, in what way our forefathers discovered mineral lodes? This is certainly easier asked than answered, but that they had great faith in dowsing is very apparent. Let any old, or even middle-aged, miner recall the times of his early youth, and contrast the large numbers of professed dowsers then with the very despised few who now admit a practice of the art. Look at the abundance of submerged hazel-rods, with leaves and nuts produced therefrom, now to be found in all our old deep tin streams, in spots where nothing of the kind now grows; pretty strong proof that they were at some time cultivated there, and can we suppose that they were cultivated without an object, or that they were grown in such abundance if not destined to be appropriated to some important use? Recollect that the rod was held sacred, and as an emblem of power, by every nation and people who came here to work the mines, or to trade with the miners established here, and that through all the long roll of ages, from the earliest times to the present day, it has been held as connected with some mysterious power of divination, and as a link between man and the Great Unseen.

An institution so universally revered through all ages of the world we do think merits respect, even if on enquiry the science of the present day should reject its authority; this has, however, been rejected without due enquiry, and its votaries held up to ridicule. And why? Simply because men do not understand it. Follow out this principle of rejection through all our industries, and of how many things shall we be deprived? I trust that every good dowser will come boldly to the front, and will manfully state his convictions on this subject. I do not think he need be ashamed or afraid any longer to do battle for what he conceives to be the truth. If scoffed at and contemned we are in good company, we are in the company of princes, priests and poets, sages and philosophers of every nation, many of whose names have been inscribed on the loftiest pinnacles of Fame.

If we mistake not, there must be some miners left who thoroughly believe they can find a lode by the dowsing-rod—*i.e.*, supposing it exists in the ground subjected to experiment. Why not let these come forward and prove their power before rejecting the principle on which they are ready to pin their faith? These men are regarded, I know, by would-be philosophers as being very unenlightened; but supposing they show that this thing can be done, and be done, too, without subterfuge or error, who are the unenlightened then? Will it be the man who seeing Nature work by some unrevealed power accepts that power, or will it be he who will not receive because he does not comprehend? We live in an age of great pride—pride of riches, pride of position, and pride of intellectual power—and yet with all our boasted riches or knowledge, the greatest and the most valuable lesson we can learn is humility. How little we do really know of cosmical influences; how little of the heavens above, or of the earth beneath our feet. We cannot comprehend how ourselves are formed, nor can we give the feeblest insect life. How, then, can we say what powers are or are not at work in the development of Nature's manifold, eternal, and wonderful combinations?

I have not, in this communication, taken up any line of argument to prove that the dowsing-rod is that sure indicator of the presence of mineral lodes it has been and is still held to be, because I prefer leaving the question to be decided by experiment. All will admit the potency of experiment in this practical age, and I do not suppose the dowsers fear the most crucial tests. Argument is of no avail in a matter of this kind, which must be decided by practical experiment in the field.

My reason for troubling you is to show that the rod can claim the highest antiquity, that it has come down to us through paths illumined by illustrious names of the great, wise, and learned of many ages, and of many nations, and is, therefore, not a thing to be ashamed of. Whether we look at the rods said to have been used by Jacob for filching the progeny of his friend's cattle, Aaron's rod that budded, the golden bough and treasure-trove of Æneas, the mistletoe of the Druids, or the dowsing rod of the ancient tinners of this country. We see it regarded as connected with and pointing to some mysterious power never yet attempted to be explained or understood. And let not any cavalier think that by affecting to disbelieve what may be written, regarding any or either of those herein mentioned, he can shake this position, for if he assumes that the accounts we have of all of them are untrue, then these books were written by many writers, and they of the olden time, and that fact sufficiently and equally proves the antiquity of the general notion regarding this mysterious power.

I think I have sufficiently shown that the dowsing rod is a thing not altogether to be despised, but that it possesses pretty fair claim to respect. Assuming this position to be established, I do not despair seeing some professed dowsers coming to the front, boldly stating their convictions, and giving instances of their skill. Should this lead to an unbiassed, thorough, and scientific enquiry, I shall no longer feel that I have written for nought, or that you have allowed me to occupy your valuable columns in vain.

Redruth, July 14. WM. TREGAY.

WEST CHIVERTON MINE.

SIR,—I thank you for the remarks in last week's City Article upon this mine, and I think we, like other mine shareholders, should be weekly posted up as to the state of the important parts of our mine. I hear that on Tuesday, the 6th, being inspection day, some few mine captains were sent down, and the results of their private reports show most conclusively the necessity there is for every shareholder being weekly acquainted with the condition of our property, be it good or bad. After these mine captains had inspected the mine the shares, which had been quoted above 26*l.* per share, fell in a few days to below 13*l.*, and we were totally uninformed as to the cause until we, in last Saturday's Journal, for the first time saw that the 140 had reduced in value from 60*l.* to 15*l.* per fathom, and that the junction of the two veins at the 150, upon which so much depended, had turned out poor. At this junction, where was so confidently expected a repetition of the former rich finds of 150*l.* to 200*l.* per fathom, as was not unfrequent in the 60 and 80 fm. levels, the report in last week's Journal for the first time tells us is worth 6 to 7 cwts. of lead per fathom—*i.e.*, 6*l.* to 7*l.* I feel that we are not justly dealt with with by being kept in a fool's paradise while others are benefiting by our ignorance. The fluctuations of the last fortnight show that some persons have known what has been kept from the general body of shareholders, and should this continue to be the practice of the mine it will require no great foresight to prophecy that sensible men will before long wash their hands of such one-sided business. I hear the officers are honest, far-seeing men, and, therefore, trust that benefit will result from these remarks. AN OLD MINER.

WEST ESGAIR LLE, CROWN, YSPYTTY, AND VAN CONSOLS.

SIR,—When there is any good news to convey no one is prouder of being in a position to do so than the person now addressing you, and it affords me much pleasure to be able to inform you that the West Esgair Lle Mine last week was visited by Mr. G. Lavington and some other gentlemen from London, holding a very heavy interest in that property, and they have resolved to carry on the working in a spirited manner. I have always written and spoken highly of this property, feeling assured that such a fine gossan mixed with copper pyrites and oxide of copper near the surface cannot possibly fail to make very large deposits of lead ore in depth. The situation of this mine is all that can possibly be desired. It lies in the same belt or zone as the celebrated Cwmystwith Mine, which stands to the south, and the great mine of Esgair-hir, which stands to the north-west, Esgair Lle being midway between the two. Each of these mines have produced some millions of pounds sterling of lead ore, and, like this mine, each produced a very considerable quantity of copper ore near the surface. It appears a considerable sum of money has been expended in machinery and other work, which, however, has been considerably retarded owing at times to a scarcity of water and other unavoidable matters. It is gratifying to be able to say that all these difficulties have been got over, arrangements having been made to bring in the Nanty Cria pools, which is a never-failing source. In my opinion, therefore, the engine-shaft eastward should be pushed down to a 60 fm. level, where I am persuaded success would be a moral certainty, as at that depth the great deposits of lead in the county begin to make in large and paying quantities. If the property were my own I should adopt this method of working, leaving the blende or western portion of the mine until the eastern portion had been brought into a permanently profitable state; it might then be attacked with advantage, and I have no doubt that some portion of the lode, rich in blende, in the shallow levels would succumb to lead ore in depth, but I believe a large quantity of blende will be associated with it at whatever depth it may be worked. I think, in conclusion, that the capital subscribed is sufficient to do all I have predicted if the mine should be worked as is here marked out.

The Crown Mine stands rather more than a mile to the west of West Esgair Lle, and is a continuation of the Van lode, and is of the same size—40 ft. wide. It has been worked by means of shallow adit levels, which have passed through a very fine gossan, and which only require depth to become a great mine. The proprietors have given orders for the cutting of foundation for wheel-pit, and I hear the wheel and other necessary machinery is in waiting for its completion. As the mine is in good hands, we may look forward with some degree of certainty at no distant date to see it become large and profitable.

The Yspytty Mine lies immediately to the west of the Crown Mine, and on the same lode. It has been worked by means of adit levels—one being driven on the main lode, the other on the south lode; these two lodes are only 15 fms. apart from each other at surface, and from their underlie will form a junction at a depth of 50 fms. from surface. I have never seen in my life a finer or more masterly lode than the main lode all the way in driving the adit on its course, whilst the south lode has opened out some splendid lead ore, blende, and copper. It is a fact well known that the main lode in crossing the River Rheidol, which is in its western boundary, contains a rib of lead ore 6 in. wide solid, and good mixture of blende. The bed of the river is about 8 fms. below their present adit. A company is now being formed to work this property, who intend to erect a good powerful water-wheel for pumping and draining, and to sink an engine-shaft to the 50, or to the junction of the lodes. That this will become as great a prize as ever Cardiganshire produced I am fully persuaded if it is worked in the manner here recommended. From the position of this and the Crown Mine they should be amalgamated, and worked as one mine. It would save thousands of pounds in giving both of them a satisfactory trial, and I hope that both parties may see the utility of joining them and working them together.

At Van Consols for some time past the working carried forward has been the deepening of the engine-shaft, so as to meet with and prove the Van lode in this grant at a greater depth than it has yet been seen in it. I fully believe that when they get to the proposed depth it will be found to contain very rich courses of lead ore, but I do not mean to say that they are bound at once to cut into a great deposit. It may be either east or west of them, I should say most probably to the east of the shaft, and until 30 fms. have been opened fairly on the course of the lode, and proved to its full width by cross-cutting every 10 fms. through it, I should strongly advise every shareholder in the mine to hold on. ABSALOM FRANCIS.

Goginan, Aberystwith.

FRONLWYD MINE.

SIR,—It is some time since any notice has been given of this promising young mine. Since the sump was placed in position it has worked well. We have progressed most favourably with sinking the shaft, the country being clay-slate thickly interwoven with mundic. Curiosity led me at the present depth to fire a shot into the north lode, and I was gratified to find the lode stone full of lead and copper; we have also a vein of rich coppery pyrites going down alongside of the quartz lode; the water leaves a rich precipitate on the scrap iron. We suspended driving the south level, where the copper lode also leaves a rich precipitate from the water. We have also splendid ochre in profusion. T. MORRIS.

Fronlwyd Mine, near Crymich, July 14.

CHONTALES—JAVALI.

SIR,—I have read the correspondence of "Investor," "W. B. P.," and a "Shareholder in Chontales," and I am a little weary of it, especially as "Investor" is departing from the courteous tone he at first adopted; this does strike me very strongly, that if "Investor" be a man of business and capital his tactics would be to purchase every Javali share within his reach, and wait for the golden harvest. In the betting world "Investor's" information would be called a "tip," and the wonderful generosity of "Investor" is very apparent, as the more he sounds the praises of Javali, the higher the shares will rise, if the public share his confidence in the undertaking, and the more he will have to pay for his shares; the public must make their own deduction, and I as one firmly believe "Investor" to be nothing more than a seller of Javali, or a buyer of Chontales; if the former, from the quotations, his remarks have not strengthened the Javali: if the latter, he certainly has not depreciated the price of Chontales, as they are firmer daily.

DISCRIMINATOR.

[For remainder of Original Correspondence, see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

There has been no increase of activity in the French iron trade. Sales have to be effected upon exceptionally cheap rates, and trade altogether remains in a precarious condition. At Paris business has been in a sluggish state; prices have exhibited no alteration. In the Meurthe-et-Moselle pig for refining has made 2*l.* 16s., and pig for second fusion 3*l.* 14s. per ton. As regards iron, first-class is worth on an average 8*l.* 5s. 9d. per ton. The foundries are not working very actively; pipes, which formerly were in much request in Germany, are only selling in small lots and at long intervals. The St. Dizier group is more favoured than the others, principally for iron, which is still in demand. The works in the St. Dizier district exhibit considerable activity as regards railway, gas, and construction *matériel*. In the Centre basin metallurgical industry remains in a languishing state. Customs duties having been officially applied to scoriæ, complaints arose upon the subject; these complaints have been satisfactorily disposed of, the committee of arts and manufactures, which was consulted upon the subject, having decided that scoriæ ought to be treated in the same category as natural minerals—in other words, that they should be admitted free of duty—since the sole means of dealing with them was to pass them to the blast-furnace. A report of M. Seny, Consul of Belgium, at Givet, states that the department of the Ardennes possesses 44 ironworks, properly so called, of which 32 are in activity; 16 blast-furnaces out of 24 were in activity in the department last year. The production of the Ardennes in 1874 comprised 1054 tons of rough charcoal-made pig, 2195 tons of cast-pig, and 15,260 tons of coke-made pig. About 37,510 of merchants' iron were made last year in the Ardennes, besides 4174 tons of rails. The total value of the metallurgical production of the Ardennes last year was 834,000*l.* Some of the large sewing machine manufactories of Berlin, Carlsruhe, Frankfort, and Mayence took iron last year from the Ardennes.

In the Belgian coal trade the state of affairs remains much the same. For the rest, until the great supplies of the winter are laid in, we shall see, we believe, little movement in the Belgian collieries. There are complaints of general stagnation; the question, of course, is what is to be done to remove the torpor which has so long prevailed? Let us assume that coal prices are about to fall, the question then arises will this enable metallurgical industry to resume its accustomed progress in Belgium, and to increase by consequence its consumption of coal? Coal from the North of France now sustains a rude competition with Belgian, sellers concluding contracts with several works which Belgian colliery owners formerly supplied. This arises from the fact that colliery proprietors in the Nord and the Pas-de-Calais, not having been able to reduce their extraction and working now as in more prosperous times, have been obliged to make large concessions in regard to prices, so that they may not witness an augmentation in their stocks. Freights from Charleroi to Paris stand at about 7s. per ton. In the Liége basin an attempt is being made to diminish the cost price of coal by a reduction in wages; resistance is anticipated on the part of the workmen. The coal of the Ruber and Saarbruck basins now reaches Belgium in rather large quantities, and at lower rates than Belgian colliery owners are disposed to accept.

The French coal markets exhibit continued feebleness; the most systematic opponents of a further decline in prices are obliged to admit this. Quotations have, however, not varied at present; powerful companies endeavour to maintain quotations in the hope that the close of the summer will bring with it some revival in affairs. Thus they refuse to sell below current rates in transactions the execution of which will not take place until the winter. But this resistance has little stability about it, and when any transaction of importance with immediate delivery is proposed sellers accept with readiness offers for the disposal of stocks which can only be embarrassing to them. The small companies, the production of which must be promptly absorbed, act more openly. They sell whenever they can do so at a profit however slight. There is not much change to note in the aspect of the Paris market, which exhibits little animation. The Picardy and Flanders Railway Company, in spite of the opposition of the Northern of France Company, has obtained the concession of lines from Cambrai to Douai, and from Aubigny-au-Bae to Somain, with a branch to Abscon.

Notwithstanding the serious efforts which Belgian industrials are making to obtain outlets for their products, the situation has experienced little change in the Belgian iron trade. The only consolation which remains to them is that in other producing centres the iron markets are even more depressed than in Belgium. It appears from an interesting report of M. Berchem, principal engineer of mines for the province of Namur, that the total production of minerals in that province last year was 387,190 tons of rough minerals, equivalent to 285,000 tons of washed minerals, of the value of about 136,000*l.* As compared with 1874, the production decreased last year about 10 per cent. The working of minerals in the province of Namur occupied 1931 men last year, their wages ranging between 2s. 1d. and 2s. 9d. per day. There were also 30 steam-engines in the province, of an aggregate force of 495 horse-power. The blast-furnaces of the province, four in number, produced last year 45,136 tons of pig, of an aggregate value of 150,196*l.* The foundries, 30 in number, produced 4500 tons of castings, of an aggregate value of about 40,000*l.* The five ironworks, with 1052 work-

men, produced 43,210 tons of forged iron, of an aggregate value of 400,000*l.* We learn from Hungary that a financial group, at the head of which is M. Tesch, is at present negociating for the purchase of the ironworks of Bajda-Hunyade, in the Liedenburgen. Much interest is felt in the realisation of this affair at Pesth, as it would form the basis of a financial combination which would admit of the construction of the Budapesth and Semlin Railway. In Germany the iron trade is seconded by the directors of the railways in the agitation which it has commenced in order to indefinitely delay the abolition of the import duties proposed to be carried out next year as regards steel and iron entering Germany.

Copper has been rather drooping at Paris. The Havre copper market has also remained quiet, and the German copper markets have been colourless. Tin has been feeble at Rotterdam; Banca has been dealt in at 50½ fl. The next sale of the Dutch Society of Commerce has been fixed for the 28th inst.; the quantity proposed to be offered of Banca is 22,600 ingots. Tin has been rather neglected in Paris, and in Germany only some comparatively small orders, to meet the current requirements of consumption, have presented themselves. The French and German lead markets have been quiet. There has been no great change in zinc in France; rolled Vieille Montagne has made 34*l.* per ton at Marseilles. The German zinc market has been relatively firm.

Meetings of Public Companies.

COLORADO TERRIBLE LODE MINING COMPANY.

A meeting of shareholders was held at the offices of the company, Great Winchester-street, on Monday,

Sir CECIL BEADON, K.C.S.I., in the chair.

Mr. FRANCIS ANDREWS (the secretary) read the notice calling the meeting. The report of the directors stated that—

The operations of the company for the year exhibit a gross profit of 8391*l.* 5s. 10d., which being debited with the interest paid (583*l.* 15s. 5d.), leaves a net profit of 7807*l.* 10s. 5d. This is net realised profit, and is exclusive of the ore of all grades on hand on March 31, the value of which is estimated at 9317*l.* The company's dressing works were last year brought into successful operation. The old stock of third-class ore, and the yield of that grade up to the end of October, was dressed, and the cleaned mineral sold. The accounts show that during the 12 months a further expenditure of 2833*l.* 10s. 8d. has been incurred in the purchase of machinery and the erection of buildings required for the ore-dressing works; the present agent advises that after spending a further 31000 in putting up a large building the works will be complete, and the charges thereafter will be confined to the cost of necessary repairs and renewals. The following is a comparative statement of the net value of ores sold in the years 1873-4 and 1874-5:—

1873-4—In Colorado...	£17,240 7 11	In England...	£ 8,257 15 9 = £25,498 3 8
1874-5— ,, ...	9,519 15 8	,, ...	17,495 19 6 = 27,015 15 2

The facilities for the sale of ore have been enlarged during the past 12 months, and it will probably be to the advantage of the company to increase the quantity disposed of in America, if correct sampling and assays and prompt payment can be relied upon. The works of development during the past 12 months are—Main shaft sunk, 109 ft. 6 in.; levels run, 697 ft. 8 in.; winzes sunk, 156 ft. The ground stoped during the same period was 947 fms. 8 ft. The ore yield being—First-class ore, 100 tons 389 lbs.; second class ore, 399 tons 1235 lbs.; third-class ore, 2495 tons: total, 2994 tons 1624 lbs., against 1712 tons in 1873-4. There was also taken out and stacked, awaiting the opening of the dressing season, 1615 tons of third-class rock, valued at $10 per ton, against 752 tons in 1873-4. The ore sold in England during the 12 months was—First-class, 80 tons 4 cwts. 2 qrs. 25 lbs.; dressed mineral, 67 tons 14 cwts. 0 qr. 1 lb.; ditto and second-class mixed, 119 tons 1 cwt. 1 qr. 13 lbs.: total, 267 tons 0 cwt. 0 qr. 11 qrs. The gross sales amounted to 20,736*l.* 9s. 7d.= 77*l.* 13s. 3d. per ton of 20 cwts. The cost of transportation, commission, and insurance was 3396*l.* 5s. 6d.=12*l.* 14s. 5d. per ton of 20 cwts. A portion of the yield of first-class ore was sold in Georgetown by the agent. The local railway has not progressed beyond Floyd's Hill, but the freight and hauling charges have been reduced by 83·70 per 2000 lbs.

The period of the engagement of Mr. George Teal as the company's agent having expired, the directors appointed Mr. G. Mansfield Henty to fill his post. Mr. Henty has had large mining experience, is capable of directing all departments of mining operations and mining machinery, and is skilled in the use of the most approved economical methods of dressing ore. Mr. Henty arrived at the mine on Feb. 11, and took over final charge from Mr. Teal on March 31.

After the close of the year covered by the accounts, the board received intimation of proceedings having been taken by Mr. W. A. Hamill, the owner of some neighbouring property, with the view to interrupt and restrain our operations in the mine below the 4th level, west of the tunnel. Having on March 15 struck a communication with our 4th level, Mr. Hamill applied for and obtained—without even the usual and prescribed notice having been served on our agent—an injunction to stay our workings in that part of the mine. At the same time, the agent was served with an order for immediate surrender of the ground claimed by Mr. Hamill, but the irregularity of the issue of such an order having been at once established, it has been removed by the Judge by whom it was signed; and although the injunction remains, our legal advisers entertain no doubt as to its removal when the case is tried at the next sessions of the Court at Georgetown.

The CHAIRMAN formally moved the reception and adoption of the report and accounts, and said that before putting the resolution to the meeting he would, as usual, make a few remarks upon it. He was in hopes at one time that he should have been able to congratulate the shareholders upon the very successful result of the working of the past year, and, in fact, the result so far as the working went, and so far as regarded matters over which the board had any control, had been extremely successful. They had made a very large profit, and the board thought that, in addition to the dividend which had been already paid, they would have been able to declare a further dividend of 5 per cent., and they would have been able to do so had it not been for certain annoying circumstances to which he would revert later on. It would be seen by the second paragraph in the report that the gross profit of the year had been 8391*l.* 5s. 10d., but he would call attention to the principle upon which the accounts had been prepared up to the present time. The present accounts had been drawn up showing the cash results only, but previous accounts had always been drawn up showing the result of cash and ore combined—that was to say, they had always taken credit for the value of the ore in hand as if it was cash, but this had long appeared to the directors as a false principle upon which to make up the accounts; and though it had prevailed from the commencement, yet the directors had this year made a change, so that though the accounts now presented showed a profit of 7807*l.* 10s. 5d. net, there was in reality a large stock of ore valued at 9317*l.*, and if they added those two items together it would be seen that the real profit of the year was 17,124*l.* 15s. 5d.; but the gross profit, as shown in the revenue account, was 27,015*l.* 15s. 2d., and if to that was added the value of the ore in hand [and the whole of which could be realised, as the estimate was considerably under the real value]. it might be taken in round numbers at 37,000*l.* Now, to compare the figures with last year. The expenses last year were 64·4 on the whole gross receipts, leaving 35·6 as profit; this year the expenses had been 52·9, and the profit 47·1, thus showing an increase of profit from 37·6 to 47·1, or about 12 per cent. He thought they would admit that this satisfactory result reflected credit upon the activity of the management in Colorado. (Hear.) In regard to the quantity of work done, it would be seen that whereas last year they raised 1712 tons of ore, this year they raised 2994 tons, and calculating the expenses upon that quantity of ore he wished to draw their attention to the fact that whereas the mining expenses in Colorado showed that the ore last year had been raised at an expense of 6*l.* 6s. per ton; this year it had been raised at an expense of 5*l.* 19s. per ton, so there had been a saving of about 7s per ton on the cost of raising. He did not know that there was anything more he need notice in the details of the report, until he came to the paragraph which related to the change of agent. Mr. Teal, who had been the company's agent for three years on a three years' engagement, intimated to the directors that he was willing to continue the engagement upon certain terms, which the directors did not think it to the interest of the company to accede to. Mr. Teal was accordingly so informed, but he wrote a reply again, saying he was willing to continue his engagement, provided the directors would agree to certain terms. The directors did not see fit to agree to those terms, and the consequence was that Mr. Teal's engagement was terminated. The directors took a great deal of trouble to select a gentleman fitted in all respects for the performance of the important duties at the mine, and he thought they had succeeded in finding one well capable and fitted for the duty; he took charge of the mine on March 31 last (although he went out two months before that in order to thoroughly master all the details of the mine before taking charge), and since he had been in charge the directors had every reason to be satisfied with the manner in which he had looked after the interest of the company. As regarded Mr. Teal he would only say that the directors had no reason to regret the loss of his services. He would next refer to the untoward circumstance which he had already alluded to, and which prevented them, with any regard to prudence, from declaring a dividend, or dividing any part of the money which remained in their hands, and the circumstance which he alluded to was the proceedings which had been taken against the company by Mr. Hamill. He held in his hand a paragraph from a Colorado newspaper, which gave very succinctly the circumstances of the case, and which he would read to the meeting:—

"It is known to most of the readers of the *Times* that some weeks since Judge Stone granted a mandatory injunction against the Terrible Company, ordering the corporation to deliver into the possession of one Hamill a certain portion of the lode held under a patent of the Terrible Company. Severe comments were made at the time upon the action of Judge Stone, and we published the statement of Judge Symes, one of Hamill's counsel. We to-day lay before our readers a correct history of the affair. When the original discovery was made by Crow and Clark, they made no haste to procure a patent, as having examined the records carefully, they had discovered nothing that would interfere with them. About this time Hamill came to them and asked permission to look up their extension west. This was readily granted, as Messrs. Crow and Clark had examined the ground themselves, and were not disposed to claim it. He brought up materials and built himself a house upon the discovery claimed by other parties. The difficulties that followed this alleged 'jumping' finally resulted in the burning of Hamill house. At a point a few feet from the western extremity of Crow and Clark's claim three holes had been dug in a line extending in a southerly direction from and at right angles with the said claim. These holes had been dug by a man named Higginbotham, and recorded prior to the recording of Crow and Clark's discovery hole. When the latter finally applied for a patent, Hamill put in a counter claim, based upon the alleged purchase of these holes from Higginbotham. The case was tried and decided against Hamill, the patent issuing to Crow and Clark. As the latter gentlemen came to develope their claim, they found that it extended further down the hill than they had supposed, passing the lowest and most southerly of the three holes above-mentioned. Hamill worked in the first hole until he found that it did not connect with the lode; then he tried the second, and finally drove a shaft from the third at such an angle that it broke into the Terrible Mine. He then applied for an injunction upon the ground that the Terrible Company was working his silver lode. The injunction issued, as above noted. It has since been modified in so far that Hamill has not been put in possession of the disputed property, but Judge Stone has refused to dissolve it, and the mine is filling with water. It is the opinion of those knowing the facts of the case that Hamill has been working upon what are simply spurs of the Terrible Lode.

It may be interesting to state here the language of the Government patent for the Terrible Lode:—'The position of the vein or lode hereby granted embraces 700 feet on each side of the centre of the discovery shaft easterly and westerly therefrom, being 1400 feet lineal along the course of the said vein, as the same have been previously occupied and improved by the above-named parties and their predecessors in pursuance of the local customs and rules of mines of Queen and Griffith district, in the territory of Colorado, with the right to follow the vein thus previously occupied and improved, with its dips, angles, and variations to the said distance of 700 feet on each side of the centre of the discovery shaft, whether the same be wholly included within the above-described surface ground or only partially so included.'"—*Daily Times, Denver, May* 24.

Now, if this had occurred in England there would not have been the slightest ground for apprehension; the directors were advised by the lawyers (and, indeed, it was obvious to the plainest common sense) that this man had no claim whatever upon the Colorado Mine or any of its spurs or dips, the whole of which were covered by the patent. What Hamill had been doing was this; he had been sinking upon a spur which lay parallel to the Colorado Terrible, and belonged to this company, but which Hamill claimed as an independent lode, and having sunk a certain distance, and driven through the granite rock which was the partition between the spur and the main lode, and having opened the lode, and run into a part of the company's property, he had applied to the District Judge for an injunction, without giving any notice to the agent, and he got the injunction issued not only to prevent the company from working that portion of the mine, but also ordering them to give up a portion of the mine in the portion of the property west of the tunnel. The company took the advice of their lawyer, and an application was made to dissolve the injunction, and after some little delay the Judge so far modified his order as to withdraw the order directing the agent to deliver up the mine, but leaving the injunction in full force. The directors had applied for and got an injunction against Hamill to prevent him encroaching further upon the mine, and from working the spur any further. The case was to come forward at the Georgetown Sessions this month, but the directors had not yet heard that it had been decided. There the matter rested at present. The company were told by their lawyer that they had a perfect case, and that Hamill had no *locus standi* against them. He might mention that, if necessary, the company could appeal to the Supreme Court at Washington against the decision of the local Court. Whilst these legal proceedings were pending it was absolutely necessary for the company to husband their resources to meet any expenses which the lawsuit might involve, and the consequence was that the money which might have been available for dividend had been kept in hand as a reserve to protect the company. As soon as the directors heard that an injunction had been obtained they sent out a special agent—Mr. Old—who was a gentleman well known to many of the shareholders, and who had a large stake in the company. Mr. Old happened to be in England at the time, and having been agent at the mine, and acquainted with the circumstances of the mine before it was purchased by the company, and being also well acquainted with the intricacies of American law, he volunteered to go out on payment of his expenses. The directors accordingly sent him out, and had received from him several letters since his arrival, and also from Mr. Henty, and the board were satisfied that everything which could be done for the company's interests would be done. Mr. Old would leave no stone unturned to protect the interests of the company, and bring matters to a satisfactory issue. Comparing the accounts of this year with the accounts of last year, it would be seen that the London expenditure had been decreased from 785*l.* to 730*l.*, and the interest had decreased from 1100*l.* to 500*l.*, and, the debts of the company having now been paid off, there would be no interest to be paid in future. The ore had sold extremely well, and had realised on an average more than it did last year. They would see by the profit and loss account that after dividing 5½ per cent. in July and February last, and paying income tax, there was a balance of 10,668*l.*, and of that amount 5039*l.* had been expended on capital account. They were all aware that the company was started with a very inadequate working capital, and the capital expenditure over and above the original amount had been provided out of revenue. There remained a little over 5000*l.* to the credit of profit and loss, the details of which would be found in the balance-sheet. The principal sum was 4190*l.* in the agent's hands, which the directors were obliged to leave there to meet the possible expenses which would have to be incurred in the pending lawsuit, and also to meet current expenditure at the mine, which, owing to this injunction, could not be met by raising any ore, because the injunction prevented them from raising ore for the purpose of meeting the expenses. Therefore it was necessary to retain that large balance in the hands of the agent. He need not trouble the meeting with any further remarks, but he should be happy to answer any question which any gentleman might put. He might mention that although the working of the mine had been almost suspended, the work of concentration was going on almost as actively as ever, and the whole of the ore represented by the 9372*l.* would be concentrated during the summer season, and would be available by the end of the year.

A SHAREHOLDER: How does the dispute about one point prevent the working of the whole mine?——The CHAIRMAN: It does not apply to the whole mine, but it applies to the most profitable part of the mine: we are only able to work the upper levels, and we are getting a little money out of the mine, but not enough to defray our monthly expenses. I cannot conclude without mentioning the services rendered to the company during the past year by the secretary, Mr. Andrews; he has devoted himself with great zeal and intelligence to the business of the company, and carried on the correspondence in a satisfactory manner. I have also had the advantage of the counsel and assistance of our colleague, Mr. Witham, who was unable to attend our meetings last year; but this year he came up to town and spent two months in London, assisting in our deliberations, looking over the correspondence and accounts of the company, and satisfying himself that everything was in order. I move that the report be adopted.

Mr. J. COOPE DAVIS seconded the resolution.

Mr. EDWARD FALCKE said he had been connected with the mine for four years, and in those four years he had received 9s. in dividends. The gross earnings of the company had been 86,105*l.*, and the amount disbursed amongst the shareholders had been 9450*l.*, and 78,550*l.* had been eaten up. He thought this was not a very prosperous state of affairs. He would admit that they had gone through very great difficulties, but he was in hopes that those difficulties had now been got over, and that as there was an available balance of something like 7000*l.* that they would have cheered the hearts of the shareholders by distributing some portion of the amount amongst them. He could not see that the remarks which applied to any portion of the mine could apply to the whole mine. He did not apprehend that they were quite paralysed. He did not see any reason why they should keep so large an amount of money locked up. Law must be very expensive in the United States if it required so large an amount to meet the difficulties. Everybody seemed to get paid except the shareholders, and he thought the expenses were enormous. (No, no.) He gave some figures showing the amount of the expenses for the past three or four years, and added that it seemed to him, judging from one of the items in the accounts, that the company had paid income tax when they really possessed no income. He moved that a dividend of 4s. per share be paid to the shareholders.

A SHAREHOLDER: What amount will it take to pay the 4s.?——Mr. FALCKE: It will take 4200*l.*, leaving a very fair balance in hand.

The CHAIRMAN, in answer to a shareholder said, that as ore was concentrated it would be sent to England.——A SHAREHOLDER seconded the resolution of Mr. FALCKE, and said he agreed with that gentleman that a portion of the profits should be divided amongst the shareholders.

The CHAIRMAN said that the profits did not now exist in cash. The balance-sheet showed that 7807*l.* was in hand on March 31 last, and they were now near the end of July; the injunction was issued just at the close of March or the beginning of April, and since then they had not worked the mine except some unprofitable portion in the upper levels. In the meantime the expenses had been at the rate of about £6000 per month, so they had swollen up to the present time up to about £18,000, which represented very nearly 4000*l.*, which was equal to the whole sum of money shown in the accounts as remaining in the agent's hands.

The CHAIRMAN said, in answer to Mr. Falcke, that in order to protect the mine it was necessary to keep an armed force in it, which cost a considerable sum.

Mr. FALCKE: He cannot "jump" the whole mine?——The CHAIRMAN: Yes.

Mr. FALCKE: Then you cannot have a title?——The CHAIRMAN said he was afraid that Mr. Falcke did not quite understand how these things were managed in America. He again referred to the circumstances under which the injunction was obtained, and added that the company possessed an United States patent which gave them a thoroughly good title to the property.

Mr. RAE said he had been in many American mines, and knew a good deal about the matters which had been referred to by the Chairman, and he could assure the shareholders that if the United States patent was legally and properly chastised they need be under no apprehension regarding the goodness of their title to the mine. Such a title was as good as any title in fee simple in this country.

The CHAIRMAN: I have no fear whatever about the title.

Mr. RAE went on to say that there was no better testimony of the goodness and value of the mine than the action which had been taken by Mr. Hammill. If the mine was worth nothing he would not have taken such a step, for no person employed desperadoes or "jumped" a mine without the almost certainty of making something out of it, and if Mr. Hammill was not pretty sure there was something in this company's mine he would not have incurred the liabilities which he had incurred. Another point was he did not think the matter would take long to settle: it would not have be taken to Washington unless he was much mistaken. The intrinsic value of the property had not gone down by what had occurred, in fact, it ought to make the shareholders feel more confident in the property. Although they were not able to declare a dividend to-day, he hoped the day was not far distant when they would be able to declare a very substantial dividend.

The CHAIRMAN was very much obliged to Mr. Rae for putting the matter before the shareholders. He was quite sure the shareholders would agree in the wisdom of not declaring a divdend out of the money in hand so long as the present law proceedings were pending. (Hear, hear.) The directors had been in the habit of giving an interim dividend whenever they had funds in hand for the purpose, and that policy the board would continue to carry out, and if they were in a position any time between this and next meeting to give a substantial dividend they would not neglect to avail themselves of it. At present it would be the height of imprudence to divide the money in hand. The directors held a very large stake in the company, and were more interested than anyone in obtaining a dividend.

The resolution for the adoption of the report was then put and carried.

The CHAIRMAN proposed that Mr. J. Coope Davis be re-elected a director of the company. He said that Mr. Davis had given great attention to the business, and had proved himself in every respect a valuable director.

The resolution was seconded by a shareholder, and carried unanimously.

Mr. J. COOPE DAVIS acknowledged his re-election.

The CHAIRMAN then moved that Mr. Charles F. Montressor be re-elected a director, and said that the same remark which applied to Mr. Davis also applied to Mr. Montressor.

The resolution was adopted, and Mr. MONTRESSOR also acknowledged his re-election.

The CHAIRMAN moved that Mr. B. J. Colvin and W. J. Marshall be re-elected auditors. He said that those two gentlemen had carried out their arduous and responsible duties gratuitously, and for the benefit of their brother-shareholders, who owed them a deep debt of thanks for what they had done.

A SHAREHOLDER seconded the resolution.

Mr. FALCKE said he could not see how the auditors had carried out their duties gratuitously, seeing that there was a charge in the accounts for auditors' fees. (No, no.)

The CHAIRMAN said that Mr. Falcke, in the course of his antiquarian researches, had come across a charge for auditors' fees in the year 1873. At that time paid auditors were employed, but the two gentlemen whom he had proposed had generously come forward and gratuitously offered to do the business; the paid auditors were, therefore, dispensed with, and the gentlemen who now did the auditing did it without any remuneration whatever. (Cheers.)

The resolution was then carried.

A SHAREHOLDER asked why the issue of the monthly circular had been discontinued?——The CHAIRMAN said it had been discontinued at the special request of the agent at the mine, who said that whilst the present suit was pending it was most injudicious to publish any circular which could afford any information whatever to Mr. Hamill. At the same time he might mention that immediately any information was received it was at once stuck up in the office, and any shareholder could come and see it, and obtain as much information as to the position of the company as the directors themselves possessed.

A vote of thanks to the Chairman and directors closed the proceedings.

SAN PEDRO (CHILI) COPPER MINING COMPANY.

A general meeting of shareholders was held at the offices, St. Helen's-place, Bishopsgate-street, on Monday,

Mr. HENRY BUXTON in the chair.

Mr. WILSON (London Manager) read the notice convening the meeting.

The report of the directors stated that owing to causes which were very fully discussed at an informal meeting, held on April 7, to which nearly 100 shareholders were invited, the directors are unable to report the completion of the machinery, and the consequent development of the mines, but the subjoined reference to the proceedings of that meeting will explain the present position of affairs. The Chairman on that occasion described at length the causes of delays that had arisen at the mines in consequence of the want of sufficient funds to erect the engine, and explained that a sum of 6000*l.* was urgently required to pay the outstanding claims and complete the engine. A committee of six shareholders was appointed to confer with the directors on the state of the company's affairs, and especially to decide whether the sum of 6000*l.* would be sufficient to erect the machinery and put the mine in working order. This committee held several meetings, and gave great attention to the position of the company, and finally expressed their opinion that 6000*l.*, if at once raised, would be sufficient for the purposes set forth. To raise this money they requested the directors to avail themselves of the power vested in them, by clause 101 in the Articles of Association, and if the present debenture holders would agree to admit another sum of 10,000*l.* to rank *pari passu*, and have an equal lien upon the company's property with themselves, thus making the first charge upon the property 25,000*l.* instead of 15,000*l.*, to grant the new debentures holders the same valuable option of exchanging their debentures for fully-paid shares of a corresponding amount. The original debenture holders at once acceded to the foregoing proposal, and the directors agreed to grant subscribers to the new debentures the option of exchanging them for a like amount of fully paid shares before May 4, 1876. The committee expressed their opinion it would be unwise to limit the subscription to 6000*l.* In accordance with this recommendation, the directors have received applications for 6185*l.* for debentures, making a total of 19,535*l.*, and telegraphed 5000*l.* to the credit of the company on May 20. This sum will suffice to pay off all claims and place the engine at work, and so enable the bottom level to be unwatered, and returns of ore resumed. No ore could be raised from the mine, while the drawing capacity of the whim was wanted to keep the water from rising to the 135 fm. level. There are 5500*l.* debentures still to issue. The directors have given the present position of the mines their earnest attention, and they hope that the difficulties that have hitherto beset the company are overcome, and that the engine will be completed during July. The mine will then be unwatered, and the drivage of the 150 cross-cut prosecuted. The timbering of the shaft will be at once strengthened, and the pitwork put in, while returns from the upper workings can be made. With respect to the other mines in the possession of this company, the directors direct attention to Cuba (holding out good indications of a valuable discovery at an early period), San Antonio, and Santa Helena, which are most promising adjuncts to the company's property, and in which deposits of ore from present appearances may be shortly opened.

The following is the agent's report submitted to the meeting:—

July 6.—After many delays, the causes of which could not be foreseen by myself or any other individual, however much experienced he may have been in mining matters in that locality, I am very pleased to be enabled to say that we are now on the point of getting at the object so long desired by the proprietors (and so much sought after by myself) of this interesting and valuable property. As soon as the water is drained—(say) in two months—we shall be in a position to make returns of from 50 to 100 tons of 20 per cent. ore (gradually increasing) per month from the high ground. Meanwhile we shall be driving the cross-cut at the 150 to intersect the manto, or lode, and driving through it, where we expect to find it 50 fms. wide; this being done, we shall have no further difficulty to contend with. In fact, I am fully persuaded in my own mind that the day is not far distant when we shall find it to be one of the greatest deposits of ore that has been met with in the district of Atacama; such favourable indications presented in the change from the varieties of ore found above the 135 fm. level to the yellow sulphurets, or, as we call it, bronces, have never been equalled in any mine in the province, including the Descubridora de Carrizalillo which has given profits above 60,000*l.* for the past year. Manto Verde, or Green Lode, at the north-east of the Manto San Pedro, has not been cut into below the 47 fm. level, where it is intermixed or impregnated with spots of copper of 40 per cent., but the whole average is low. There has been a cross-cut driven at the 110 fm. level towards this object without having accomplished it; we shall continue this cross-cut with all possible dispatch, as in all probability this manto will improve in depth. At the 88 fm. level we have commenced a cross-cut towards the western branches, from which large quantities of ore have been raised; these branches are standing intact from 10 fms. above this level to the bottom of the mine. I consider our chances of success here are exceedingly good, as we have a manto of 40 per cent. ore gone down in the bottom of the 47, which has not been opened on below this point, and is independent of the western branches, but is bearing in the same direction, and in all probability will form a junction at about this point; this will be a lasting reserve for the mine in case my views are correct.—Cuba Mine: Here we have a manto of great promise, which produces ore from 12 to 16 per cent. at surface, and which will probably become a very valuable property in depth. This remark will apply both to the San Antonio and the Santa Helena Mines. In conclusion, I beg to state the same as I always wrote you—to the effect that you have got one of the best mining properties in Chili, and it is only wanting development to become a profitable and well paying investment.—RICHARD M. KITTO.

The CHAIRMAN moved that the report and statement of accounts be received and adopted.——Mr. ROBERT OLDREY (a director) seconded the proposition.

Mr. WILSON, after reading the directors' and agents' reports, stated that the position and prospects of the undertaking had been so recently fully discussed that he would take it for granted the meeting would rather Capt. Kitto—the agent of the mines—should give his own statements. He would tell them that his opinion of the property was better than ever—that he had come over before the late remittance was telegraphed to represent to the shareholders the great value of their mines, and to urge upon them the obvious necessity of providing funds to develope them. He had had many hours' conversation with Capt. Kitto since his arrival in England, and had received from him a confirmation of every statement that had been made about the great riches of their mines. The mines were in charge of Mr. Peregrine O. Wilson, and the erection of the engine under the superintendence of their engineer would not be retarded by the absence of their manager. Chpt. Kitto had expressed a wish to subscribe for 500*l.* of the debentures, and had privately urged on him (Mr. Wilson) the advisability of taking the whole of the unissued amount.

Mr. J. C. SMITH asked how long it would take to get at the ore, and whether the 5000*l.* sent over to Chili would, in his opinion, be sufficient to bring the mine into profitable working?

Mr. JOHN SCHOFIELD asked what would be the estimated comparative advantages of working with the engine-power, the cost of timbering, or rather strengthening the timber, in the shaft, and whether it would be necessary to do all that work immediately? He further enquired as to the probable raisings during the next twelve months, and the probable difference during the first six months between the costs and returns?

The CHAIRMAN said it would be satisfactory to the shareholders to hear from Capt. Kitto the probable amount of profit that would be realised when the mine was in efficient working order.

Capt. KITTO replied that the mine would be unwatered in a week after the engine went to work, and that once done, returns could be made; that the 5000*l.* would be sufficient to pay all claims, and put the engine to work, but not enough to extend all the cross-cuts; that the engine would draw one skip of 100 gallons of water in three minutes, instead of 15 minutes, as now; that great advantage would be gained by the large boilers, one of which would only be used, so having the other in reserve during cleaning or repairs; that a great saving in coals would be effected by the large size of the boilers, a saving he calculated of from 6 to 10 quintals of coal in the 24 hours, 6 quintals being estimated as the consumption in that time; that he had seen no machinery in Chili equal to, or at least superior, to that on the mine; that labour was plentiful and cheap; that it would not be easy to fix the cost of thoroughly strengthening the shaft and putting in the pitwork, but that he thought it would be covered by an outlay of 2000*l.*; that it would not be necessary to do all this immediately, but that it could be spread over six months. He further stated that in the event of nothing new being cut during that period the difference between the costs and returns might be

300*l.* or 400*l.* a month, but that if the lode was cut into rich at any of the points indicated in his report the returns would greatly exceed the estimate he had made of them, and probably then no more money would be required. To the Chairman's enquiry he said that he calculated the profits would be $200,000 a-year, or 40,000*l.*, and that the returns would reach 500 tons a month within 12 months.

Mr. TWEED, a director, said that these results must not be looked for until the cross-cuts were extended, and the mines in thorough working order, and that to do this money would be required.

Capt. KITTO, in reply to further questions, stated that Cuba was a manto, just the same as San Pedro—that a good lode of copper had been discovered at surface, that a level was being driven into the side of the hill, which would cut the lode 20 fms. deeper, and where he fully expected to cut the ore richer, 16 or 20 per cent., which would pay well; that he calculated they might have to drive this level some 10 fms. further to get under the lode seen at the surface. At San Antonio a shaft had been sunk about 40 metres, where a nice branch of ore was seen, which he fully expected would improve in a few metres sinking. At Santa Helena there was a manto producing 40 to 60 per cent. ore, from which he had great hopes it was in a splendid country, while the strata were good and the ore very rich.

It was stated by Mr. Wilson that the last advices reported an improvement in the 110, where the end was worth 3 tons of 30 per cent. ore per fathom; that there would be no difficulty in placing the balance of the debentures, as several applications had already been made. It must not be inferred that the shaft was in bad order —it was a splendid shaft, but must be kept so.

Mr. OLDREY stated that from 30 to 40 per cent. could be saved by paying cash for timber and other materials in Chili.

The explanations given by Capt. Kitto and the London Manager appeared to give great satisfaction to a numerous and influentially attended meeting.

The resolution to receive and pass the accounts, and the directors' and agent's reports, was then put and unanimously carried.

The election of John Thomas Tweed, Esq., as a director, was unanimously agreed to.

The election of Mr. Whaley, of the Bank of England, as auditor, was also voted *nem. con.*

On the motion of JOHN SCHOFIELD, Esq., seconded by ALBERT LEVY, Esq., a cordial vote of thanks to the Chairman, directors, and officials of the company, for the very able way in which they had successfully surmounted difficult circumstances, was then carried, and the meeting terminated with suitable acknowledgments.

NEWPORT ABERCARN BLACK VEIN STEAM COAL COMPANY.

A general meeting of shareholders was held at the offices, St. Mary Axe, on Wednesday,—Rev. Mr. WARD in the chair.

The SECRETARY read the notice convening the meeting, and the report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said that although the anticipations expressed at the last meeting that by this time they would be raising coal had not been realised, the future could be safely prognosticated, as they fully expected the charcoal vein would be reached during August. The balance-sheet had been a good deal criticised and misapprehended. Some shareholders had written him expressing surprise at the very large items; but although those items appeared as for only one year's expenditure, they really embraced the whole period from the foundation of the company, and he could not help thinking it would have been better had those items been separated, and it had been made apparent that they were spread over the whole time from the formation of the company. The expenses of the London office had been reduced by some 200*l.* to 300*l.* per annum, and in consequence of the secretary having left, and the board being willing to take little more trouble upon themselves they had appointed a secretary at a very great reduction. The item for preliminary expenses had been found to be very moderate when compared with other companies of the same magnitude. The item for miners' cottages was for 65 instead of 45, which made the cost of erection for each cottage considerably less than it appeared in the balance-sheet. The machinery, plant, pumping and drawing engines, which were purchased some time ago, when very much dearer than now, the reduction in price vary from 15 to 30 per cent. The item of 1067*l.* for exploring and opening out No. 1 seam included also the cost of a very expensive archway, and several lodges, places for retaining the water, so that it could be conveniently pumped to surface. The foundation for the pumping engine-house was 28 ft. deep, and built in such a masterly manner as could not be surpassed—that certainly must be taken into account, because in some of the neighbouring pits the foundations were only 3 and 4 ft. An idea had obtained that there were two boards of management, which was entirely an error—there was only the London board, although there was an office, as there always must be, at the colliery. The larger portion of the item of 286*l.*, which was also from the beginning of the company, was for bankers' commission, and with regard to the item of 2600*l.*, fees to the Chairman and directors, it was for two and a half years' services from the formation of the company. He would not say anything about himself, but his co-directors' attention upon the management of the company was most praiseworthy, and all that could be desired by shareholders. He then proposed that the report and accounts be received and adopted.

Mr. BEYNON (managing director) seconded the proposition. The delay in sinking had not been altogether occasioned by the hard rock. The first operations were immediately followed by the Whitsuntide holidays; the working was then carried on by manual labour, and the first thing done was to order the necessary engine, so as to be able to employ steam-power as soon as possible; the engineer who accepted the order guaranteed to deliver the engine in six weeks, but they did not get it for nearly four months, owing to the state of the labour market, and then only when the engineer went with the money in his pocket. The next serious difficulty was the failure of their three contractors; they succeeded in getting two very respectable men, who were still at the work, which was proceeding very fairly. The walling of the pits had been a heavy work; they were afraid there might be a great quantity of water; therefore, in cutting down the rock, a distance of about 66 yards, they took the precaution of coffering pits, which rendered it necessary to make them larger than the normal dimensions, causing greater outlay and more time than ordinary walling. It was absolutely necessary to make provision to cope with the water. Having ascertained that in a neighbouring colliery it had been considered necessary to erect a 85-in. cylinder-engine, an engine of similar power it was considered would be sufficient for them, and it was decided they should have such a pumping-engine. A second-hand Cornish engine was offered them for considerably less money, and they were told by some people it would be quite sufficient. But as they were opening up one of the grandest collieries in England they decided that such an engine would not be fully equal to their requirements. The second-hand engine had been erected at another colliery, where it had not answered anticipations; but the new one, which was erected at this colliery, was thoroughly efficient, and at present doing only two strokes per minute during the 24 hours. They calculated they were now 17 yards from the Charcoal Seam, and he thought that the shareholders would agree with him they had not done so badly as the report of the directors would tend to impress upon the minds of the shareholders. Sinking had continued most successfully without one single accident to the machinery, and he believed when they got down to the Black Vein and working it there was not a colliery in England that would pay better. He would much rather see the shareholders at the pits, so as they could see the nature of the working and its substantial character, and what sort of concern it was in which they had taken an interest. There was no doubt they would touch the Charcoal Seam next month, when a large outlay would at once be stopped; they were now bound to buy a large quantity of coal for their engines, then they would be able to use their own coal, as well as sell it in the market. He hoped in about two or three months the output would be 1000 tons per week, and 2000 tons in 12 months.

Mr. BICKERSTAFF said he had consulted several shareholders upon the balance-sheet, all of whom regarded it as a very unsatisfactory one. There were several items with reference to which it was imperatively necessary some explanation should be given by the board. For instance, the preliminary expenses represented one-fifth of the whole of the purchase-money. He thought shareholders had a right to know to whom the money had been paid, and whether paid in accordance with the Articles of Association. He believed the shareholders had every confidence in the board as a working body, but he thought the directors should have some consideration for the shareholders, and if they were to forego their fees for one year it would not be more than they ought to do. The shareholders whom he represented, with his own interest, held 1000 shares, and he had no doubt that after the explanation the Chairman had given it would soften down the present feeling.

Mr. WILSON asked what the board could tell the meeting about the future? The money was running away rather sharply, and he should like to know if the present capital would be sufficient to develope the three pits at present sinking without exceeding the borrowing power taken at the last meeting?

The CHAIRMAN said both the superintendent and the engineer were present, and would be glad to answer any practical questions put. He believed the approximate items for the additional expenditure, irrespective of the sinking, would all be completed for about 20,000*l.*

Mr. GETHING, the solicitor, explained with reference to the preliminary expenses that the promoters required what was considered rather an excessive sum, which resulted in this—instead of the company bearing the whole of the expense, they bore about a moiety. A considerable expense was incurred with gentlemen connected with the Stock Exchange, and the eminent inspecting agents who were engaged to examine the colliery on behalf of the directors, had also to be well paid. Messrs. Cory and Beynon, who only held paid-up shares, expended nearly the same amount as that incurred by the company.

The CHAIRMAN, in reply to a question, said that the item of 1632*l.* for salaries included that paid to their late able secretary, manager (who was licensed and certificated by Government), and engineer; and if the shareholders would kindly remember this item covered more than two years he could not imagine they would regard it as an excessive charge.

Mr. RUSSELL EVANS said the sum of 3750*l.* which had been paid to him as the promoter represented the whole expense up to and inclusive of the date of allotment, and if there had been no allotment the risk and expenditure would have fallen upon him. He had read in the report of the auditor the amount of preliminary expenses was very moderate. The absolute expense in floating the company was in excess of that received—the amount did not quite cover the actual outlay.

The report and accounts were received and adopted.

Upon the proposition of Mr. CECIL RAIKES RAIKES, M.P., seconded by Mr. BICKERSTAFF, it was unanimously resolved to appoint Mr. Bagshaw, accountant, the auditor for the ensuing year.

Mr. BEYNON, as managing director, said he would be very glad for any mining engineer to inspect the colliery. He was certain any competent man would come away with a very good opinion of the property. As far as he was concerned, he was quite willing to give his services and advice gratuitously until the company began to make profits. (No, no.)

Mr. GREEN, the underground manager, explained that the pit was now down about 148 yards, and about 16 yards to reach the charcoal seam, which would be accomplished in about four weeks. In about six months after commencing operations he thought they would be able to get 1000 tons per week, and in about another six months probably 400 tons per day. There was every prospect that the charcoal seam would prove well; the stratum was very natural and regular, indicating that there was no fault or disturbance near. The shafts had had to be sunk through the Pennant series, which were very hard, besides having a lot of water and difficulty to contend with. Below the charcoal seam the average of the rock was about one-third, whereas down to the present point it had been two-thirds.

Mr. WILSON had much pleasure in moving that the best thanks of the shareholders be passed to the Chairman, directors, and managing directors for the attention given, and the able manner in which they had continued to conduct the company's affairs up to the present time. He felt perfectly satisfied with the progress made. From the first he had said the property could not be developed under three years, and it was satisfactory to him to find that, considering the drawbacks and difficulties, they were so near the realisation of success.——Mr. SALISBURY seconded the resolution, which was put and carried unanimously.

The CHAIRMAN acknowledged the vote, and the meeting separated.

MARKE VALLEY MINE.

The general meeting of shareholders was held at Salisbury on Wednesday, Mr. B. WARBURTON in the chair.

Mr. JOHN HARDING (the secretary) read the notice convening the meeting, and the statement of accounts for the three months ending July having been submitted, showing a balance of assets over liabilities of 1270*l.* 19*s.* 8*d.*, the subjoined report from the managers was read:

July 12.—We beg to hand you the following quarterly report of this mine:—During the past three months Salisbury shaft has been sunk 1 fm. 4 ft. 6 in., making the depth below the 136 fm. level 9 fms. 1 ft. 6 in.; the ground continues to be hard granite. The 136 has been driven west 5 fms. 5 ft. on the south side of Marke's lode in elvan and granite; the spar part of the lode where broken into near the end is improved in appearance, and contains good stones of copper ore. The 70 west, on Rosedown lode, has been driven 2½ fathoms; in the present end it is 3 ft. wide, composed of capel, quartz, and mundic, with saving work for copper ore. The 60 west, on Rosedown lode, has been driven 3 fathoms; the lode in this end has improved, now yielding 3 tons of copper ore per fathom, with every appearance of further improvement. The 50 west, on Rosedown lode, has been driven 5½ fms. through good orey ground, and in the present end is worth 4 tons of copper ore per fathom. We have resumed the driving of the 30 west, on Rosedown lode, which is composed of gossan, capel, quartz, and good stones of copper ore. The 20 has been driven west on Rosedown 3½ fathoms; the lode here has very much improved, and will now yield 6 tons of good copper ore per fathom. This end is in whole ground, and now about 100 fathoms from surface on the course of the lode. We have the following stopes and pitches working for copper ores on Marke's Rosedown, and Fisher's lodes:—In the 124, on Marke's, one stope worth 3 tons per fathom. In the 112, on Marke's, three pitches at 7s., 8s., and 13s. 4d. in 1*l.* In the 100, on Marke's, one stope worth 5 tons per fathom. In the 100, on Marke's, one pitch at 13s. 4d. in 1*l.* In the 80, on Rosedown, four stopes worth together 22 tons per fathom. In the 80, on Rosedown, one pitch at 5s. in 1*l.* In the 60, on Rosedown, three stopes worth together 13 tons per fathom. In the 60, on Rosedown, one pitch at 13s. 4d. in 1*l.* In the 50, on Rosedown, two stopes worth together 5 tons per fathom. In the 40, on Rosedown, one stope worth 5 tons per fathom. In the 40, on Rosedown, three pitches at 7s. 6d., 10s., and 11s. in 1*l.* In the 30, on Rosedown, two stopes worth together 10 tons per fathom. In the 80, on Fisher's, one pitch at 13s. 4d. in 1*l.* The winze in back of the 10 for new shaft has been risen 6 fathoms, making the present height 26 fms. above the 10 fm. level; the ground continues favourable killas. The new shaft is now down 16 fms. from surface—in favourable ground for sinking. It is with much pleasure we are enabled to report so satisfactorily of the value of the ends which are more favourable for exploring, and, as will be seen by the foregoing report, are opening up considerable additions to the reserves of ore ground in the mine.—JAMES SECCOMBE, JAMES STENLAKE, FRANCIS RENALS.

The CHAIRMAN congratulated the meeting upon the encouraging character of the agents' report, and upon their improving financial position.

The report and accounts were unanimously adopted, and it was resolved that the shares now in arrear of calls, and in respect of which notice of forfeiture has been given pursuant to the Stannaries Act, 1869, and to the resolution passed at the previous meeting, be absolutely forfeited, that they be carried to a forfeited share account, and sold or otherwise disposed of, as the committee may determine.

The usual complimentary votes terminated the proceedings.

EAST POOL MINING COMPANY.

A two-monthly meeting of the adventurers was held at the mine on Monday, Mr. R. R. BROAD in the chair. There was a large attendance.

The CHAIRMAN, before commencing the business of the day, said the meeting reminded him of the past, and he hoped to see such an attendance for many years to come. He thought he might be allowed to say, on behalf of the committee, that they were very much satisfied to find themselves in the pleasurable position in which they stood that day, able, as they were, to recur to the declaration of a dividend. During the last two years and two months, ever since May 12, 1873, they had been without dividends. They had been labouring under a *suspense* account, and he pronounced the word emphatically and significantly. (Mr. Michell: The less said about it the better.) Assuredly as a committee, and far beyond their individual status as shareholders, they had reason to congratulate themselves on the position in which they stood that day. The committee had been for a long time suffering under no inconsiderable reproach, one way and another, in reference to the manner in which the affairs of the mine had been conducted; but they had now got through the worst, and they were gratified in being able to announce to them that day that they would resume the position which they held some few years ago, and which he hoped they would maintain for a long period to come. He hoped they had seen an end of their trouble and difficulties. Although subjected to severe strictures in various ways, they had managed to bear the reproach cast upon them, especially by one section of the fourth estate of the realm. They had been reproached under the peculiar subterfuge of phantom ramblers and the phantasmagoria of correspondents. (Laughter.) Conscious of the sincerity of their principles and the integrity of their actions, they as a committee had persevered, and they were convinced that time only was required to emancipate them from the position they were in, and so it had proved; and that day they would have the pleasure of declaring a dividend, and that it was the beginning of a long series of dividends he was sure they would all pray, and say amen. (Applause.)

The CHAIRMAN then read the statement of accounts, which ran as follows:—Labour cost for April and May, 2545*l.*; merchants' bills, 1022*l.*; Stannaries assessment, 8*l.* 9*s.* 6*d.*; bank charges, 66*l.* (an item which the Chairman hoped to see obliterated); dues 191*l.* on account of the 13th month, 300*l.* (the third 300*l.* in the last six months), making a total of 4134*l.* On the other hand, there were received for copper ore sold 895*l.*; tin, including in stock valued at 336*l.*, 2460, less in stock last account, 220*l.*; making a credit for tin, 2240*l.*; tinstuff, 1792*l.*; carriage on tin ore, 5*l.* 19*s.*; income tax on dues remitted, 2*l.* 12*s.*; on account of arsenic, 900*l.*; rent of water, 8*l.*; making a total credit of 5774*l.*, and showing a profit on the two months' working of 1640*l.*, from which the committee proposed to declare a dividend of 800*l.* At the last accounts there was a balance against the adventurers of 759*l.*, and they would now, after declaring a dividend of 2*s.* 6*d.* per share, have a balance to carry forward to the next account of 81*l.*

Mr. GEORGE MICHELL said if they had not charged the 300*l.* towards the 13th month they would have 1900*l.* profit to show. They had now not only a clear book, but had 81*l.* to carry on.

The CHAIRMAN stated that on September 14 last they had a balance of 709*l.* against them, and in 10 months they had cleared off that balance, and were able to declare a dividend of 800*l.*, and to carry forward 81*l.* In addition to this they had charged 900*l.* to the 13th month, so that really the profit since September 14, 1874, was not less than 888*l.* Their assets, which there was no charge against, consisting of tin ore on the dressing-floor, spare machinery, boiler, &c., old iron, wolfram, &c., amounting altogether to 2760*l.*

Mr. MICHEL: We have credited 8 tons of tin, and we learn this morning that it is 8 tons 7 cwt.; so that we have not credited anything but what we have really ready for sale.——Mr. RULE: What do you make for your tin?——Mr. MICHELL: 42*l.* 5*s.*

The CHAIRMAN read the minutes of the committee meeting, in which it was shown that they had resolved to obtain supplies for the mine in future by tender, and that 16 heads of stamps had been ordered.

The report of the managers was then read, as follows:—

July 12.—Great Lode: The 180 is driven east of engine shaft 32 fms., and is worth for tin 40*l.* per fathom. The 180 is driven west of cross-course 5 fms., and worth for tin 18*l.* per fathom. Four stopes in the back of this level are worth on an average 20*l.* per fathom. We have commenced to drive a cross-cut south (at this level), on the cross-course, to intersect the engine and south lodes; the ground is favourable for driving. The 170 east and west are without alteration. Four stopes in the back of this level are worth on an average 18*l.* per fathom.—Engine Lode: Two stopes in the back of the 160, on this lode, are worth 18*l.* per fathom each. The rise in the back of this level, and the cross-cut at the 140 over it, are favourable for progress. The 155, driving east, is worth for tin 9*l.* per fathom.—South Lode: The 160 is driven west of long winze about 15 fms., and worth for tin 14*l.* per fathom; and east 15 fms., and worth for tin and copper 16*l.* per fathom. We have communicated the rise from the back of this level to the 140 on cross-course, and a stope in the bottom of the 140, west of this rise, and one to the east of long winze, are worth for tin and copper 18*l.* per fathom each stope. The 150 is driven east of eastern cross-course 11 fms., and worth for tin and copper 15*l.* per fathom. The 140 is driven 7 fathoms to the east of long winze, and worth for tin and copper 18*l.* per fathom. The 120 is east of cross-course winze about 12 fms., and worth for tin and copper 13*l.* per fathom. Three stopes in the bottom of the 130, and four in the back of the same level, are worth on an average for tin and copper 16*l.* per fathom.—JOHN MAYNARD, JOHN HOSKING (managers), WILLIAM TIPPET.

On the motion of the CHAIRMAN, seconded by Mr. HARRIS, the accounts were passed, and a dividend of 2*s.* 6*d.* per share declared.

The adventurers afterwards dined together, Mr. Broad again presiding. After dinner the CHAIRMAN, in proposing "Success to the mine," said it would be gratifying to their neighbours to know that in the deepest level looking eastward their prospects very good indeed. One neighbour had gone to a great expense for a series of years to cut their lode, and he hoped the adventurers would be rewarded for their perseverance. (Applause.) He had been told of a little dream to the effect that twelve months ago someone whispered down the mine shaft, "12,000*l.* in debt," but Brother Tin gave a grin, and Brother Copper a loud laugh, and Brother Wolfram said to Brother Tin and Brother Copper—"Let the fools alone; where ignorance is a bliss it's a folly to be wise, and I will see what I can do for you. Although not much in demand or very popular, I will see that your yards are squared." (Laughter.) Well, the yards had been squared, and Brother Wolfram had been something towards it.

Mr. WOOLCOCK proposed, "The health of the Chairman, the committee, and purser." They had had great difficulties to contend with, and had worked during the last two years under very adverse circumstances, both in connection with the mine and with outside correspondents, and they were happy to find that day that they had passed out of these adversities and had passed into prosperity, and he hoped they would live long to continue to declare dividends, and to increase them as time went on. (Applause.)

The CHAIRMAN acknowledged the compliment, and said the committee would always endeavour to do their best for the interest of the mine; and if they did that they would be advancing their own interest, as well as that of the shareholders.

Mr. MARTIN said that, as chancellor of the exchequer of the mine, he had a good deal to do, and he had given the affairs of the mine his best care and attention. If his periodical statements were not satisfactory in every respect to them, they were satisfactory to himself, and the most satisfactory was the one he had been able to present that day. As long as his health permitted he would do the best for them, as well as for himself. (Applause.)

The CHAIRMAN proposed "Success to Wheal Agar, coupled with the name of Mr. WADDINGTON, who, in responding, said that whether Wheal Agar succeeded or not, he should never forget the endeavours he had made to develope a mine which was rich in resources, and if the riches did not come to him he hoped posterity would find them. He felt a deep debt of gratitude to the agents of East Pool, to the committee and purser. They were men who attended to their own business. They had, unitedly, thrown the champion, or the burden, which had been hanging over them in the shape of a suspense account. Whether it came there for fear of difficulties which probably never could have occured, there it was, and having once got a footing it went on increasing to an alarming extent to the prejudice of their property. He hoped they would also succeed in overthrowing the champion granite, which resisted their success at Wheal Agar. He believed from their dialling at East Pool that they might calculate on a great period of long prosperity, and as they went down deeper they would have still greater prosperity. When their great lode and their south lode came into junction—when the two rich lodes came together—they might calculate on having immense wealth. He hoped they would have it, and that Wheal Agar would also share in the prosperity, and that they would be able to look back on East Pool as the mine to which they were indebted for their success. (Applause.)

Mr. WADDINGTON then proposed "The health of the agents." He felt assured that they were thoroughly devoted to the interests of the adventurers. He never came to the mine and found them absent, except on their masters' business, and they knew nobody's business but their own. He felt certain that, whether as miners, engineers, or mineralogists, they had in their agents the best servants the county of Cornwall could produce; and he said this after having been frequently associated with them for some time past.

Capt. MAYNARD, in responding, said the report before them was just the truth as to the mine, and he believed it was looking as well now as ever it did.

Capt. HOSKING, in responding, congratulated the shareholders in East Pool on having so excellent a property. He might go into some details, and show that the resources of the mine were almost infinite. At the 180 they had gone over 60 fathoms of very valuable ground, and it showed the importance of the lode they had opened on, and he believed that some time in the future they would be able to find a still better level deeper down. As Mr. Waddington had said, when the lode formed a junction with the great north lode there would undoubtedly be a great amount of wealth. He referred to an important point in the 160, in the south lode, where they had intersected with a crossing near the western cross-course, and and had opened up something like 28 fathoms, and where they had communicated with the 150 at two different points, and also with another winze, and the ground, although not equally as valuable as the north lode, was rich in its character, strongly mineralised, containing wolfram and arsenic, copper and tin, more or less. They had gone 6 or 7 fathoms east of the long winze at the end of the 160, and they valued the ground at 18*l.* per fathom. There was a very strong and well-defined lode in that end, and it was equally if not more valuable than in the 140. The piece of ground from the 160 to the long winze and the 130 had been very valuable. After referring to some other points, Capt. Hosking concluded by saying that the further they developed this property the more important it would become.——Capt. TIPPETT also responded.

Mr. RULE proposed "The health of Capt. James;" and

Capt. James, in responding, said there were very few mines in the county that could honestly meet costs with the present price of tin. There were only four or five that could fairly do so. He was pleased to see by the bank-book on the table that day that there were 2265*l.* standing to the credit of the mine in the bank. That was a very rare thing to see now, even with dividend-paying mines. Some of the richest mines were fearfully overdrawn at the bank. Nothing should be left behind the scenes, and every outside shareholder should be made as fully acquainted as possible with everything connected with the mine. There was a bitter feeling in London against mine agents in some quarters, as he had recently found, and pursers and merchants also came in for a large share of abuse, but he did not believe that it was in any way deserved. Mining in Cornwall generally was conducted with integrity; and if outside shareholders saw more for themselves they would alter their minds. He concluded by proposing "The health of Mr. Rule."

Mr. MAXWELL added that Mr. Rule had reduced the price of coal in Penzance 5*s.* per ton.——Mr. RULE briefly responded, and other toasts followed.—*West Briton.*

BIRDSEYE CREEK GOLD MINING COMPANY.

The fourth annual meeting of shareholders will be held on Thursday, when the following report will be presented by the directors:—

The accounts show that during the past year 3188·64 ozs. of gold have been obtained, realising 12,230*l.* 3*s.* 8*d.* at a cost of 9734*l.* 3*s.* 10*d.*, leaving a net profit of 2495*l.* 19*s.* 10. One dividend, representing 1875*l.*, has been paid during the past year. The balance standing at the credit of profit and loss account is 1627*l.* 2*s.* 1*d.* The directors propose, with the sanction of the proprietors, to write off from this account 1000*l.* of the amount of 4309*l.* 16*s.* 3*d.* standing to the debit of the new tunnel. This will leaves 627*l.* 2*s.* 1*d.* to be carried forward. It will be seen by the balance-sheet that on April 30 the sum of 1052*l.* 7*s.* 9*d.* was owing by the company in California. By accounts, to May 31, since received, this debit balance has been reduced to 473*l.* 3*s.* 5*d.* The present water season has proved to be one of the driest, as regards the fall of snow in the mountains, ever known in the history of California. During the water season of 1874 a full supply was running in the company's ditches from January 1 to May 25, and washing was carried on to Sept. 23. During the present season the ditches were only full from Jan. 18 to Feb. 10, and the superintendent reports that the South Yuba Company will not be able to supply a head of water after July 15. The above cause alone sufficiently accounts for the diminished returns. But it has also been evident, from the advices from time to time published, that the hopes entertained of increased returns from the Neece and West claim could not be realised during the present season in consequence of the drifted ground in that claim proving more extensive than had been anticipated, while at the same time the difficult nature of the ground rendered the cost of washing greater. It is with much satisfaction, however, that the directors are able to call attention to the marked improvement in the quality of the gravel in this claim, and to the fact that the limit of the drifted ground appears to have been reached at last.

In the last report reference was made to the hope expressed by the superintendent, that he would be able to complete the new tunnel (known as the Pechey tunnel) into the Red Dog claims by the commencement of the present water season. In consequence, however, of the very hard rock encountered, the tunnel was not completed till March 31, almost too late for energetic working this season; even had water been available. This tunnel is now ready to commence washing through at a day's notice, and will, it is hoped, when the claims are opened up, add materially to the returns; while, at the same time, the cost, which has of late been absorbing a large proportion of the profits made by the Neece and west claim, will cease. It will probably take about three months after the commencement of washing to get these claims into full and remunerative work. Owing, then, to these circumstances, the fulfilment of the words of the last report—"Two claims will then be running in the blue lead"—appears to be delayed until the next water season; and the directors can only express their hope that the results of the future may be such as to compensate their fellow-shareholders and themselves for all the wearisome delays which have taken place. The directors have taken advantage of Mr. Bowe's visit to California, to request him to prepare, in conjunction with Mr. Powers, their valued superintendent, a detailed report on the present position and future prospects of the company's property. This report will, they trust, arrive in London in time to be read at the annual meeting.

[For remainder of Meetings see to-day's Journal.]

TESTIMONIAL TO CAPT. WILLIAM THOMAS.—The many friends of our esteemed correspondent Capt. William Thomas, of Cooshen, will be glad to learn that his unceasing labours during 35 years in connection with the mines and minerals of the county of Cork, have just been recognised by the presentation of a handsome address and testimonial, the latter contributed by the Earl of Bandon, Lord Bernard, and the magistrates, clergy, gentry, and merchants of West Cork, Capt. Somerville, J.P., and Mr. R. H. Notter, J.P., acting as vice-chairman and honorary treasurer to the fund. The address which accompanied the testimonial was of a highly complimentary character, and amongst other things said: "We believe, without disparaging others, that you are one of the most able mining engineers that ever came into the county of Cork. And from your thorough knowledge of mineralogy and geology of the South-West of Ireland, you have always maintained this position. From your having been brought so entirely in contact with the labouring population for so long a time, it is only right to add that the justness of your dealings and active sympathy towards them have never been brought into question, at the same time we believe you have ever sought to promote the interests of those who entrust the management of their affairs to you. During the unexampled sufferings at the time of the famine your exertions were unwearied in endeavouring to alleviate the distress and misery, and are still held in grateful remembrance; and your establishing a fishery at Coosheen was not only the means of saving many poor people from starvation, but clearly proved that if

t were carried out on an extensive scale it would become a great source of 'national wealth.' It, therefore, affords us sincere gratification to offer you the expression of our respect and regard, with the hope that you may be spared to establish the mines and fisheries of West Cork and the South-West of Ireland on a permanent basis, and that your labours may be crowned." The address, which was very numerously signed, is to be emblazoned, and that it will be regarded by Capt. Thomas, as he remarked in his reply, as a reward far beyond the value of any pecuniary consideration can be well understood. A handsome donation to the fund was received by the last mail from the manager of the Kapanga Gold Mines, New Zealand. The presentation was made at a fully attended meeting, and Capt. Somerville in presenting the address remarked that it is by the exertion of such energetic men as Capt. Thomas that capital is taken into Ireland, and from its outlay every person receives a benefit either directly or indirectly, therefore, every encouragement and inducement should be offered to English capitalists. That Ireland has enormous mineral wealth capable of profitable development has been shown not only by Capt, Thomas, but by many other correspondents of the *Mining Journal*, and it may be hoped that the time is not far distant when she will contribute far more largely to the mineral returns of the kingdom.

MINING ENTERPRISE IN UTAH—THE NEPTUNE AND KEMPTON MINES.

As an instance of the rapid increase in the value of mining property with encouraging prospects the case of the Neptune and Kempton Mines, about 36 miles from Salt Lake City, may be referred to. It appears that only two years ago the Neptune was sold for 600*l*., and the Kempton was absolutely unsaleable at any price, but as the ore raised since then has fully paid costs, and the prospective value of the mines has been better ascertained, negociations are now going on with German capitalists for the sale of mines, together with the Sheridan Hill Smelting Works, some 15 miles distant, for 200,000*l*. In connection with the negociations our valued correspondent, Dr. W. Bredemeyer, of Utah, has made an elaborate report upon them, with the object both of studying the lodes and suggesting a practical method of dealing with the minerals. In his report he states that in the south-west part of the district, which lies in the Oquirrh range, two belts of limestone, from 100 to 300 ft. in thickness, are observable from the south-east in most irregular foldings, and many dislocations of the strata that at present show a general strike of north-east and south-west, and with a dip at angles varying from 20° to 80°. In many of the breaks and faults large dykes of syenitic and hornblenbe porphyries are observable. They are especially large and frequent in the southern and south-western portions of the district. The presence of these dykes of igneous rock occupying the breaks of the strata, suggests the origin of the disturbances that has upheaved, folded, and broken the sedimentary beds.

The Neptune is both a bed and contact vein; it is a bed vein because it is conformable in strike and dip to the bedding or strata of the formation; hence it, therefore, follows that the vein must conform to all foldings, slips, disturbances of any kind incidental to the great upheaval of the strata folded into anticlinal curvatures. We must look to the strata as the true indication and guide of the vein at any fixed point along the course of the same. The Neptune is a contact vein at the same time, because it appears between the shaly quartzite as hanging-wall, and dolomite or magnesian limestone as footwall. The lode developed and discovered in the Kempton Mine is a fissure or gash vein, because it has all the appearance of a fissure, but does not extend its course to a great distance. The Kempton crosses the Neptune, so that through the hanging-wall of the Kempton we will reach the Neptune and *vice versa*. The Neptune lode is from 4 to 45 feet wide. In numerous places are bonanzas, or ore chambers, from 15 to 50 feet wide, and from 10 to 110 feet long. In this bonanza is ore which goes as high as 65 ozs. in silver, and up to 60 per cent. in lead. From between the first and second level all the way down to below the third level from about 100 feet west of the Kempton incline, which is a distance of over 200 feet, the vein carries from 6 to 28 feet of first-class ore, from 10 to 30 feet of concentrating ore, and in the galena chamber from 1 ft. to 4 ft. black sulphurets of copper ore. The Kempton lode has a general bearing of north 15° east, and dips with 80° west. The vein is from 3 to 10 ft. wide. In the main level the Kempton carries 6 to 12 feet solid galena, which assays 21 ozs. in silver, 50 to 64 per cent. lead, and 35 in gold.

The Neptune vein contains galena, oxide, carbon, sulphurets of lead, grey copper and sulphurets of copper. The impurities in this ore are pyrites, decomposed pyrites, and oxide of iron. The Kempton vein galena, oxide, carbon, sulphurets of lead, and thin streaks of red copper. The impurities in this ore are the same as in the Neptune. The average percentage of the first-class ore is from 21 to 26 ozs. in silver, and 50 to 64 per cent. in lead. The second-class ore, 16 to 21 ozs. in silver, 36 to 50 per cent. in lead; roasting and concentrating ore, 12 to 21 ozs. in silver and 35 to 60 per cent, in lead; copper ore, 16 to 20, 6 ozs. in silver and 12 to 31 per cent. in copper. The work hitherto done has been chiefly for the purpose of development, but the results obtained have been most encouraging. The Neptune and Kempton Mines hoist at present 35 to 40 tons per day, and could easily ship 80 tons per day, but for the want of ore teams during the winter in Bingham canyon. During the last seven months of 1874 the shipments were—June, 591 tons; July 750; August, 771; September, 976; October, 1093; November, 350; and December, 362 tons. Besides this there is over 1000 tons of copper ore, and Mr. Bredemeyer estimates without the slightest hesitation the actual value of the Neptune and Kempton Mines from the surface to the main Neptune tunnel at 400,000 tons of first-class, and over 500,000 tons of second roasting and concentrating ore, and to 30,000 tons of copper ore. The Neptune main tunnel is now 400 ft. in, and will strike the main Neptune incline at a vertical depth from the entrance of said incline of 227·7 ft. or 327·7 ft. from the uppermost works. The whole length of this tunnel to said incline will be 615 ft. The timbering throughout the mines, and the facilities in general, are every way splendid, and without fault. Rail track is throughout the whole mine, and the engine on the main Neptune incline and the horse-whim on the Kempton incline are running day and night. From the top of the dumps extends a double tramway down to the canyon. Access to and transport from the mines is also in best style by a broad wagon road to Bingham Railroad Station.

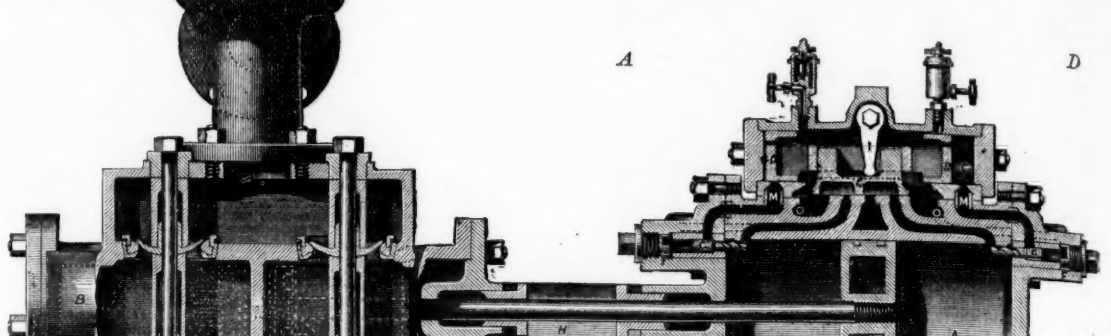
With respect to the future working of the mines Dr. Bredemeyer earnestly advises the proprietors to run both the Neptune and Kempton main incline continually ahead, and unite the same with the Neptune main tunnel through a fourth level. The several drivages should all run parallel, and not less than 100 ft. from each other. He strongly advises the erection of concentrating and separating works on the Jordan river opposite the smelting houses. Works of such extent that they work 200 tons in the 24 hours, so that the same could custom ore from the other Bingham mines also, The future production of the mines will justify the erection of eight cupola and two reverberatory furnaces.

AN AMERICAN VIEW OF THE LEAD MARKETS.—About six weeks ago the European lead markets, under the stimulus of a demand incident to the menace of war, experienced a sudden upward movement, while this market remained dull and stagnant, with little prospect of a speedy improvement. Since then the relative position of the markets of both continents has undergone a radical change. In Europe, since the apprehensions of political complications have been allayed, the price has been steadily tending downward, while here more extensive purchases for *bona fide* consumption have followed closely upon a slack spring demand preparatory to an active fall trade. The world's normal lead production sums up something like 300,000 tons, toward which England contributes 70,000; Spain, 67,000; Germany, 49,000; the United States, 46,500; Italy, 23,000; France, 17,000 (mostly from Spanish ores); while the remaining countries furnish 27,500. Thus, of the larger producers France turned out the least, and even this little was in the main derived from the neighbouring Peninsula. Yet France has at all times been one of the largest consumers, and its dependence on other countries for a supply has been anything but a comfortable fact in the appreciation of the French people. The subject has engaged the attention of the Frenchmen, and some long-abandoned lead mines of Brittany of unusual richness are now to be made to yield some good returns. Mining operations near St. Brieuc were commenced by the ancients, who carried on their works on an extensive scale, though, of course, in a very imperfect manner. The works were partially resumed about eight or ten years since, when a steam-engine was erected, the shafts and levels cleared and repaired, and about 60 tons of ore sold, some of which realised at Swansea over 37*l*. per ton. The proprietors, however, became involved in the panic of 1866, the works were abandoned on the eve of success, and the mine allowed to fill with water. Some two years ago another attempt to re-open the mine was made, and some 60 tons of ore were raised and sold, which satisfied those concerned that the property was worth energetic development. Other mines in the same locality seem no less important; the Bouexieres yielding 60 ozs. of silver and 70 per cent. lead; the Plouvars, more recently discovered, ranging from 30 to 80 ozs. silver and 40 to 70 per cent. lead; the La Ville Alhen, from 60 to 130 ozs. silver, and between 55 and 78 per cent. lead; the Rue Bourgee Mine, from 60 to 300 ozs. silver and 50 per cent. lead. At the La Ville Alhen Mine operations were suspended during the revolution of 1790, after having been successfully carried on for about 25 years. Now that the French seem to bestow more energy than ever before on the development of domestic resources, and strikingly deficient as the country is in lead production, it is to be presumed that the resuscitation of this important industry will be taken in hand most vigorously, and that there will be no lack of capital to produce the desired results. In Spain mining operations are in full blast in the rich province of Andalusia, and the output has been unusually ample since the commencement of the year. Prices have, in consequence, been gradually receding in the leading markets of Europe, and unless a decidedly favourable change takes place in the demand there for industrial purposes, which, at latest dates, remained slack, still lower figures may be reached on the other side. In this country lead is in a much better position than it has been for a year past. During the summer of 1874 the Government suddenly resolved to clear out its available supplies, at a time when we were yet suffering from the effects of the panic. The Government surplus is now very nigh exhausted, and the sales of the Quartermasters' department will no longer disturb the market. This year the spring business in lead has, it is true, also been a disappointment, causing prices to remain at a low range. But for the fall campaign a more flattering prospect opens, since it has been ascertained that the supply in the hands of both dealers and consumers has been allowed to run low. In order to at least partially meet these growing wants, a more extensive movement took place last week, and with it a more promising outlook seems to have been obtained. It will now remain to be seen to what extent the anticipated briskness in August will confirm the views entertained by these early purchasers, and on it will mainly depend the course of values until winter.—*Iron Age* (New York).

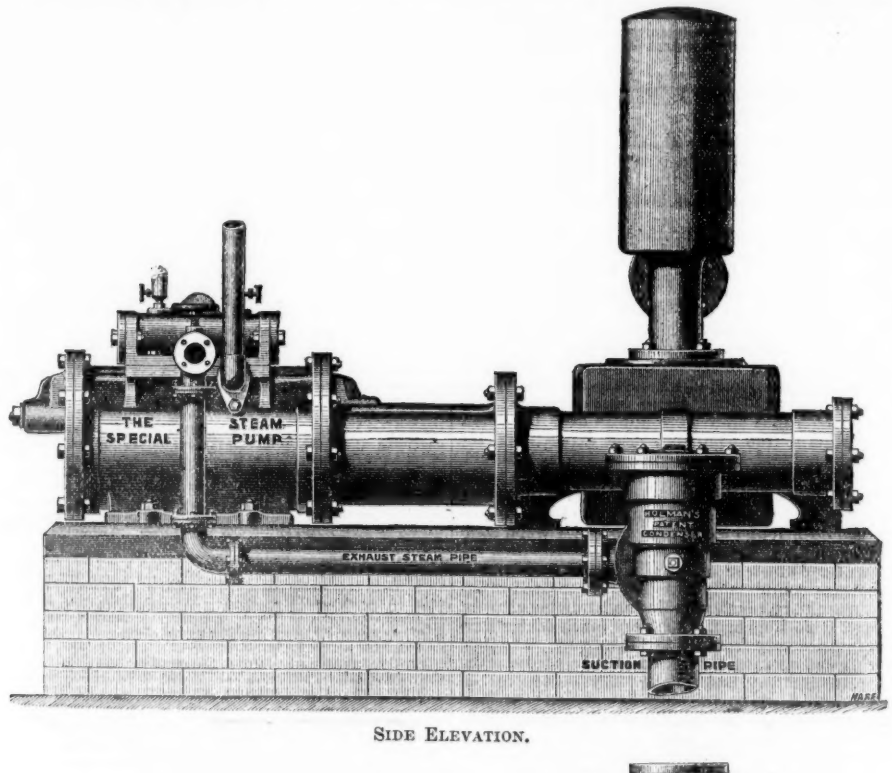
PRESERVING WOOD.—M. Lostal, railway contractor, of Germany, has communicated to the Society of Mineral Industry, at St. Etienne, France, the results of his observations on the effects of lime in preserving wood, and his method of applying it. He piles the planks in a tank, and puts over all a layer of quicklime which is gradually slacked with water. The wood is said to require remarkable consistence and hardness, and to be quite safe from decay.

IMPORTANT DECISION FOR THE DIRECTORS OF LIMITED COMPANIES.—The Master of the Rolls has decided in the case of the Western of Canada Oil Land and Works Company that several of the directors who had received certificates that they were registered owners of certain paid up shares of 100*l*. each must be put on the list of contributors for the shares in their names, and pay costs. He was surprised defendants allowed the case to come into Court. They could not have saved their money, but they might have saved their characters.

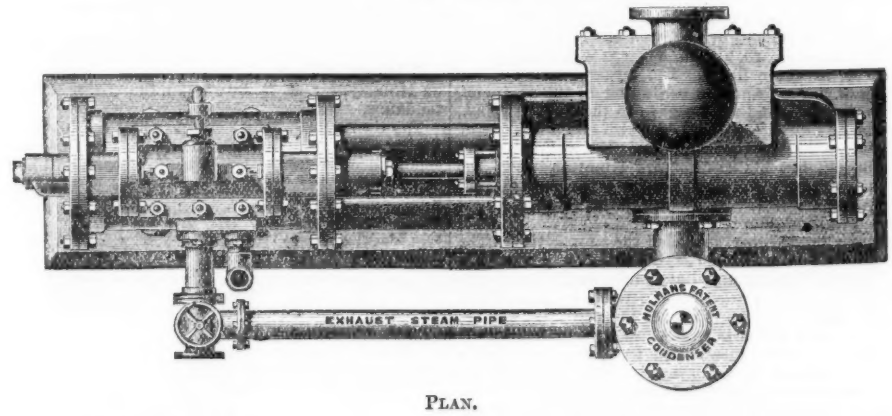
DRAINAGE OF DEEP MINES—STEAM PUMPS.



SECTIONAL VIEW OF THE "SPECIAL" STEAM PUMP, FITTED WITH HOLMAN'S PATENT BUFFER VALVES AND SEATS.



SIDE ELEVATION.



PLAN.

STEAM PUMPS.

The drainage of deep mines has always engrossed the attention and taxed the skill of mining engineers. Among the many types of engines employed for this purpose those in general use are the Cornish engine, the rotative beam engine, the horizontal rotative geared engine, and the direct-acting steam-pump. Much has been written on the merits of the Cornish pumping-engine, and no doubt it is the most economical pumping-engine yet introduced for very high lifts, but when we consider its enormous cost, with its massive foundations, expensive engine-house, &c., and compare it with the modern direct-acting steam-pump, it appears strange that so few have been employed in Cornwall for draining metalliferous mines. Take the approximate cost of the Cornish engine as follows:—

40 in. cylinder	.....	9 ft. stroke	.....	£ 810
60 ditto	.....	9 ditto	.....	1570
80 ditto	.....	10 ditto	.....	2810
90 ditto	.....	10 ditto	.....	3400

Exclusive of pumpwork, being only that portion which performs the functions of the few parts comprised within the letters *A, B, C, D* of the (sectional view) illustration. The cost of the "Special" steam-pump to throw the same quantity of water will be found less than *one-fourth* that of the present Cornish pumping-engine, without its massive pump-rods, balance-bobs, guides, &c., which must of necessity be of enormous strength; still, with the greatest care, breakages often occur, causing great injury to the whole of the pitwork, and stoppage of the mine until repaired, and the water again in fork. It is now becoming the usual practice in coal mining districts to fix the engines at the bottom of the shaft, and transmit the steam from the boiler at the surface through long lengths of steam-pipe, well clothed and protected; and in those districts, in most instances, it is found more economical to take the steam down the pit than to employ the heavy spears, rods, &c. Some will hold it to be an objection to use long lengths of steam-pipe, but the difference between the pressure in the boiler and the cylinder in stationary engines is found to be about 3 lbs.; frictional resistance need not be taken into consideration, for where the steam-pipe is sufficiently large, without sharp turns and bends, the loss of pressure is not appreciable; therefore the size of the pipe, its proper clothing and erection, is of paramount importance in laying down underground pumping-engines. The loss by condensation in taking the steam down a shaft of 1000 ft. is about ¼ lb. of coal per horse-power per hour.

The manufacture of the "Special" steam-pump has now grown to a great magnitude, and has achieved for them a well deserved and extended reputation. Some of the efficient plant already in successful operation may be given as instances of the capacity of the pumps, and the desirability of still extending the system:—At the Adelaide Collieries, 26-in. steam cylinder, 6½-in. water cylinder, throwing 8000 gallons of water per hour 1040 ft. high in one direct lift; this pump has been in constant work for five years, and still works steadily and noiselessly, requiring scarcely any attention; and of late years it has still increased in favour and demand, until the dimensions of the largest size now attained and at work are 44-in. steam cylinder and 12-in. water cylinder, capable of throwing 30,000 gallons of water a height of 800 ft., and no doubt still greater achievements will yet be effected by its celebrated manufacturers.

Although this class of pump is so well known, yet we deem a description of same at the present time not inappropriate, as there are so many of its class being introduced into the market, all being of the same type, but each claiming some peculiar merit and adaptability to some special purpose.

The steam-pump cylinders (A and B) are placed in a line with each other, and they are connected by a distance piece (H), the end flanges of which form the covers for both cylinders. The steam cylinder (A) is made with a double set of steam passages, one pair of these passages leading from the slide-valve face to the ends of the cylinder in the usual way, and the other pair extending from near the ends of the steam-chest to the inner ends of small cylindrical chambers, formed one on each cylinder cover (F F).

Each of these chambers is fitted with a reversing valve (G G), which closes an opening in the cylinder cover, these valves being—except when moved by the piston—kept against their seats by the pressure of steam on their backs, the outer ends of the valve chambers being placed in free communication with the steam chest by small passages.

The slide-valve (E) covers the exhaust port and one pair of steam ports, and it is made of the section shown, so that when it is removed to the right steam is admitted into the right hand port, and *vice versa*. In the engraving the valve is shown in the position it occupies when steam is being admitted into the left-hand port, the other port being placed in communication with the exhaust. On the back of

the valve are a pair of lugs fitting between two collars, formed on a spindle connecting a pair of plungers (D D), which work in the cylindrical portions forming the ends of the valve chest (C C), and into which the second pair of steam ports (M M) open. The plungers (D D) are for the purpose of shifting the slide-valve, and are made to work comparatively free, so that sufficient steam will pass them to form a cushion at either end alternately. When the pump is at work the starting lever (I) remains stationary, as the valve does not move far enough to touch it.

The action of the apparatus is very simple. Supposing all the parts to be in the position shown, the piston will, when steam is turned on, move from left to right. On arriving at the end of the stroke it will open the reversing valve (G) in the right-hand cylinder cover, thus placing the second right-hand steam passage in communication with the right-hand end of the cylinder, and consequently (owing to the position of the main valve) in connection with the exhaust. This being the case, the pressure is removed from the back of the right-hand plunger (D) connected with the main valve, and the pressure of the steam on the inner side of the plunger then forces the latter to the right, the slide valve being, of course, carried with it. This movement admits steam to the right-hand end of the cylinder, and places the left-hand end in communication with the exhaust, and the piston then performs its stroke from right to left, when the operations described are repeated at the other end of the cylinder.

This system of drainage has many recommendations other than those already enumerated—its extreme simplicity, fewness of parts, durability and compactness, a good duty obtained, and we may look forward to a still better duty, as mining engineers are largely interesting themselves in the working of this system, and perhaps will ultimately be enabled to use steam expansively, and so attain to greater economy of fuel; it also dispenses with the cumbersome pump-rods, leaving a clean shaft for hauling purposes, those are matters that must demand the attention of Cornish engineers shortly when the cloud now hanging over tin and copper mining will be dispersed, and many new and shallow mines again be worked with vigour, the small outlay, requiring little time for erection, thus commencing immediate operations, and being eminently adapted for drainage purposes, having the many years' experience of working in coal mines, must show metal miners that such an introduction as this will be of lasting benefit, and we shall look forward to its more extending adaptation in the western mining districts; the enormous expenditure required for the laying out of the old plant has prevented the launching of many mining schemes, which if introduced with less costly apparatus for drainage would have been started and brought to payable investments.

The great success which has attended the special steam-pump may also be accounted for by the excellent arrangements of the pump-valves, and the maximum effect obtained by their use; it is a matter of the greatest importance that details of all pumping machinery should be of the most substantial and durable character. Holman's automatic buffer valves should be more widely known, they have been used under very high pressure and wear for a lengthened period; the sectional illustration will be readily understood; the valves and seats are constructed of mineralised junction India-rubber, one portion of which is rendered hard for the purpose of keeping it true (in shape), and holding it in position, and the other portion is comparatively soft to ensure a silent and sound seating of the valve. The valve instead of being a flat disc is made of a parabolic form, so that there is less resistance to the passage of the water. The hard rubber seatings are secured in their places by screwed brass rings, affording every facility for examination and renewal when necessary. The peculiarity of this arrangement consists in their being void of all central seatings, arms, or wing-guides, so that no resistance or obstruction is offered to the free passage of the fluids through the valve orifices; the lift of the valve is governed by a rubber tube slipped over the spindle slightly bearing on the valve when closed, and offering a greater resistance as it opens, which assists the valve to close on the return stroke, thus causing it to close without shock, and consequently less wear to the seat. This is a most important feature, because the valve closes automatically instead of being hammered on to their seats by the rapid return of the piston under a heavy load of steam, which equals in a piston 12 in. in diameter, at 40 lbs. per square inch, a weight of 2 tons. All the valves can readily be got at should they be clogged up by any means, in fact three minutes was sufficient at the trial to uncover the valves and put them together again in an ordinary size pump.

The steam distributing valves are all automatic, dispensing with eccentrics, tappets, or valve gear; it is a double-ended piston-valve placed above the cylinder, its motion being determined automatically by two small valves placed one at each end of the cylinder. The speed may be varied to any extent up to 100 strokes per minute, and will continue working equally steady whilst the pressure is anything above the load, and if the load should be suddenly withdrawn or diminished the pumping still goes on without shock, and no damage can be done, provision being made for cushioning the piston before it arrives at the end of the stroke. So nicely is this adjusted that the suction may be suddenly lifted out of the well and as suddenly dropped in again, without the slightest injury to any parts of the machine, which is a very severe test, and is one of the advantages derivable from the use of special steam pumps. Mining engineers will appreciate this merit, and there are many instances outside of mines where the well, caisson, or tank may run dry, when an ordinary steam-engine without an efficient governor would run away, the use of which increases the number of working parts.

Objection is sometimes made as to its non-applicability in the case of the shaft being flooded. Mr. Davey now places his differential pumping engines 300 ft. above the bottom of the pit, and employs hydraulic-engines to lift the water from the sump to the main engines. Many instances might be mentioned where the special steam-pump has been drowned and the water forked simply by turning on the steam. After a time the submerged pump has freed itself without the slightest damage to any of its parts, and other instances of lowering the pump into the pit slung in a chain, fixing the pipes and starting to work with but little delay, and so forking the water without any cumbersome erections. It is used also the same way in sunken ships, and so constructed as to pump water mixed with sand, coal or grain, and termed the wrecking-pump.

As a circulating pump on board ship this will become invaluable, and is already in demand for large steam-ships. It is used universally by the United States Naval Department; at a moderate cost a pipe and valve could be fixed to the inlet pipe of this pump, and connected with the bilge, which in case of damage to the ship would pump away a large mass of water.

The introduction of Holman's patent self-acting exhaust steam-condenser has overcome the difficulty long felt of getting rid of the exhaust steam, and is the great desideratum looked for in the working of underground pumping-engines, and being inexpensive is rapidly coming into use. The engraving illustrates a full-sized condenser and blow-through valve, as well as the method of attaching a condenser to the direct action of steam-pump.

The condenser in its general structure consists of a valve-box, having one, two, or more valves or deflectors, with single beats and seats, in which are formed annular steam spaces, through which the exhaust steam (at whatever pressure it leaves the cylinder) issues in thin annular streams to meet the water passing over the valve seats, and thereby becoming instantaneously and effectively condensed without disturbing the pump action, and at the same time aiding the steam-engine by removing a constant dead atmospheric load to the extent of several pounds per square inch of its area, and multiplying its effect upon the pump in proportion to the excess of the area of the steam-piston over that of the pump. Many collieries use compressed air, but this means an expensive plant, and is not recommended where steam can be applied and condensed.

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